RESTRICTED SERIAL NO. 90

PRELIMINARY INSTRUCTION BOOK

FOR

NAVY MODEL RBF-1

SONO-RADIO BUOY RECEIVING EQUIPMENT

RECEPTION
FM

FREQUENCY RANGE
70 TO 90 MCS.

MANUFACTURED FOR
U. S. NAVY DEPARTMENT – BUREAU OF SHIPS
BY
AIRPLANE & MARINE INSTRUMENTS, INC.
CLEARFIELD PENNSYLVANIA

CONTRACT NOs-95457 DATE: 13 DECEMBER, 1941

OPERATION OF THIS EQUIPMENT INVOLVES THE USE OF HIGH VOLTAGES WHICH ARE DANGEROUS TO LIFE. OPERATING PERSONNEL MUST AT ALL TIMES OBSERVE ALL SAFETY REGULATIONS. UNDER CERTAIN CONDITIONS DANGEROUS POTENTIALS MAY EXIST IN CIRCUITS WITH POWER CONTROLS IN THE "OFF" POSITION DUE TO CHARGES RETAINED BY CAPACITORS, ETC. TO AVOID CASUALTIES, ALWAYS REMOVE POWER, DISCHARGE AND GROUND CIRCUITS PRIOR TO TOUCHING THEM.

RULES FOR RESUSCITATION

PERSONNEL ENGAGED IN THE INSTALLATION, OPERATION AND MAINTENANCE OF THIS EQUIPMENT OR SIMILAR EQUIPMENT ARE URGED TO BECOME FAMILIAR WITH THE FOLLOWING RULES BOTH **IN THEORY AND IN THE PRACTICAL APPLICATION THEREOF.** IT IS THE DUTY OF EVERY RADIO-MAN TO BE PREPARED TO GIVE ADEQUATE FIRST AID AND THEREBY PREVENT AVOIDABLE LOSS OF LIFE. YOUR OWN LIFE MAY DEPEND ON THIS.

ELECTRIC SHOCK: FIRST-AID TREATMENT

SAFETY FIRST Regard electrical apparatus generally and especially all current-carrying parts, as dangerous, irrespective of voltage. Exercise great care in handling, and avoid broad contacts such as are made by standing on a metal deck or in water.

Dangerous contact may result through lessened resistance when the skin and clothing are wet with perspiration. Contact with damp metal surfaces—decks, bulkheads, guns, machinery — may allow the current to ground through the moist skin and body.

Electric shock is due to current passing through the body —current actually passing—irrespective of the voltage. A pressure as low as 110 volts has caused death. Current passing through the body in the region of the heart is especially dangerous. In using electric breast drills avoid the possibility of a ground.

Usually electric shock does not kill instantly. Life can often be saved even though breathing has stopped.

I. FREE THE VICTIM FROM THE CIRCUIT IMMEDIATELY.

Use a dry nonconductor (rubber gloves, clothing, rope, board) to move either the victim or the wire. Beware of using metal or moist material.

Shut off the current.

If necessary to cut a live wire, use an ax or hatchet with a dry wooden handle; turn your face away from the electrical flash.

II. ATTEND INSTANTLY TO THE VICTIM'S BREATHING. Begin resuscitation at once on the spot. Do not stop to loosen clothing; every moment counts.

RESUSCITATION BY THE PRONE PRESSURE METHOD OF ARTIFICIAL RESPIRATION—ELECTRIC SHOCK—GAS ASPHYXIATION—DROWNING

Waste no time. When the patient is removed from the water, gas, smoke, or electric contact, get to work at once with your own hands. Send for the medical officer or nearest physician.

No reliance should be placed upon any special mechanical apparatus, as it is frequently out of order and often is not available when most needed. The patient's mouth should be cleared of any obstruction such as chewing gum or tobacco, false teeth, or mucus, so that there is no interference with the entrance and escape of air.

POSITION

1. Lay the patient on his belly, one arm extended directly overhead, the other arm bent at elbow and with the face turned outward and resting on hand or forearm, so that the nose and mouth are free for breathing.

2. Kneel straddling the patient's thighs with your knees placed at such a distance from the hip bones as will allow you to assume the position shown in Fig. 1.

Place the palms of the hands on the small of the back with fingers resting on the ribs, the little finger just touching the lowest rib, with the thumb and fingers in a natural position, and the tips of the fingers just out of sight.

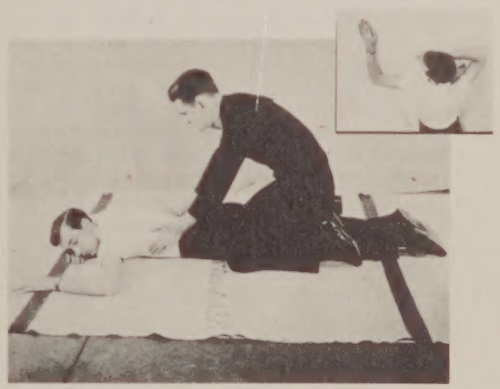

Fig. 1

FIRST MOVEMENT

3. With the arm held straight, swing forward slowly, so that the weight of your body is gradually brought to bear upon the patient. The shoulder should be directly over the heel of the hand at the end of the forward swing. (See fig. 2.) Do not bend your elbows. This operation should take about two seconds.

Fig. 2

SECOND MOVEMENT

4. Now immediately swing backward, so as to remove the pressure completely. (See fig. 3.)

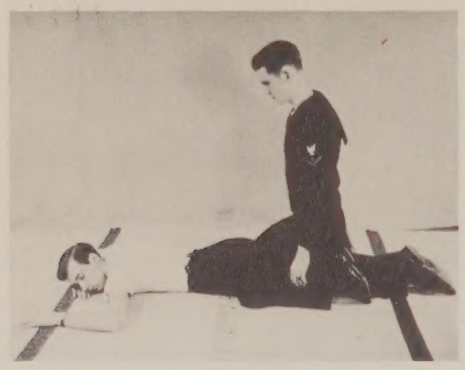

Fig. 3

5. After two seconds, swing forward again. Thus repeat deliberately twelve to fifteen times a minute the double movement of compression and release, a complete respiration in four or five seconds.

6. Continue artificial respiration without interruption until natural breathing is restored. Do not get discouraged at the slow results that sometimes happen when resuscitating the apparently drowned. Efforts often have to be continued a long time before signs of life are apparent. Do not discontinue the efforts until certain that all chance is lost. Sometimes, even after several hours work, recovery takes place.

7. As soon as this artificial respiration has started and while it is being continued, an assistant should loosen any tight clothing about the patient's neck, chest, or waist. TO KEEP THE PATIENT WARM DURING ARTIFICIAL RESPIRATION IS MOST IMPORTANT AND IT MAY BE NECESSARY TO COVER HIM WITH BLANKETS AND WORK THROUGH THEM, AS WELL AS TO APPLY HOT-WATER BOTTLES, HOT BRICKS, ETC. Do not give any liquids whatever by mouth until the patient is fully conscious.

8. To avoid strain on the heart when the patient revives, he should be kept lying down and not allowed to stand or sit up. If the doctor has not arrived by the time the patient has revived, he should be given some stimulant, such as one teaspoonful of aromatic spirits of ammonia in a small glass of water or a hot drink of coffee or tea, etc. Continue to keep the patient warm and at rest.

9. Resuscitation should be carried on at the nearest possible point to where the patient received his injuries. As a general rule he should not be moved from this point until he is breathing normally of his own volition and then moved only in a lying position. Should it be necessary, due to extreme weather conditions, etc., to move the patient before he is breathing normally, resuscitation should be carried on during the time that he is being moved.

10. A brief return of natural respiration is not a certain indication for stopping the resuscitation. Not infrequently the patient, after a temporary recovery of respiration, stops breathing again. The patient must be watched, and if natural breathing stops, artificial respiration should be resumed at once.

11. In carrying out resuscitation it may be necessary to change the operator. This change must be made without losing the rhythm of respiration. The relief operator should kneel behind the one giving the artificial respiration and at the end of the movement, the operator crawls forward while the relief takes his place. By this procedure no confusion results at the time of change of operator and a regular rhythm is kept up. PRACTICE IN THE PERFORMANCE OF ARTIFICIAL RESPIRATION ON A VOLUNTEER SUBJECT SHOULD BE OBTAINED BY EVERYONE.

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This document contains information affecting the National Defense of the United States within the meaning of the Espionage Act (U.S.C. 50:#31, 32). The transmission of this document or the revelation of its contents in any manner to any unauthorized person is prohibited.

This Instruction Book is furnished for the information of commissioned warranted, enlisted and civilian personnel of the Navy and persons authorized by the Bureau of Ships whose duties involve design, manufacture, instruction, operation, and installation of radio, radar, or underwater sound equipment. The word "Restricted", as applied to this instruction book signifies that it is to be read only by the above personnel and that its contents should not be made known to unauthorized persons not connected with the Navy.

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WARNING

Since this equipment employs high voltages which are dangerous to life, it has been designed to protect operating personnel against accidental contact with such high voltages. All high voltage cable fittings which might be contacted if removed from their corresponding fittings are provided with female connectors to prevent personnel from coming in contact with battery voltages. Operating personnel should not insert any metallic tools into the fittings unless the fittings are first disconnected from the battery source. Fuses and vacuum tubes may be changed or replaced without danger of accidental contact with high voltage. The power should be disconnected before servicing the chassis. The instructions contained in the following pages should be followed in order to promote the safety of the personnel and reliable operation of the equipment.

THE ATTENTION OF OFFICERS AND OPERATING PERSONNEL IS DIRECTED TO BUREAU OF SHIPS MANUAL OF ENGINEERING INSTRUCTIONS, CHAPTER 31 (MIMEOGRAPHED FORM), OR SUBSEQUENT REVISIONS THEREOF, ON THE SUBJECT OF "RADIO-SAFETY PRECAUTIONS TO BE OBSERVED."

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GUARANTEE

The equipment, including all parts and spare parts, except vacuum tubes, batteries, rubber and material normally consumed in operation, is guaranteed for a service period of ONE YEAR with the understanding that, as a condition of this contract, all items found to be defective as to design, material, workmanship or manufacture will be replaced without delay and at no expense to the Government; provided that such guarantee and agreement will not obligate the contractor to make replacement of defective material unless the failure, exclusive of normal expected shelf life deterioration, occurs within a period of TWO YEARS from the date of delivery of the equipment to and acceptance by the Government; and provided further, that if any part or parts (except vacuum tubes, batteries, rubber and material normally consumed in operation) fail or are found defective to the extent of ten percent (10%) or more of the total number of similar units furnished under the contract (exclusive of spares), such part or parts, whether supplied in the equipment or as spares, will be conclusively presumed to be of defective design, and as a condition of contract subject to one hundred percent (100%) replacement by suitable redesigned units.

Failure due to poor workmanship, while not necessarily indicating poor design, will be considered in the same category as failure due to poor design. Redesigned replacements which will assure proper operation of the equipment will be supplied promptly, transportation paid, to the Naval activity using such equipment, upon receipt of proper notice and without cost to the Government.

All such defective parts will be subject to ultimate return to the contractor. In view of the fact that normal activities of the Naval Service may result in the use of equipment in such remote portions of the world or under such conditions as to preclude the return of the defective item or unit prior to replacement without jeopardizing the integrity of Naval communications, the exigencies of the Service therefore may necessitate expeditious repair of such item or unit in order to prevent extended interruption of communications. In such cases the return of a defective item or unit for examination by the contractor prior to replacement will not be required. The report of a responsible authority, including details of the conditions surrounding the failure, will be acceptable for effective adjustment under the provisions of this contractual guarantee.

THIS PERIOD OF TWO YEARS AND THE SERVICE PERIOD OF ONE YEAR SHALL NOT INCLUDE ANY PORTION OF THE TIME THAT THE EQUIPMENT FAILS TO GIVE SATISFACTORY PERFORMANCE DUE TO DEFECTIVE ITEMS AND THE NECESSITY FOR REPLACEMENT THEREOF, AND PROVIDED FURTHER, THAT ANY REPLACEMENT PART SHALL BE GUARANTEED TO GIVE ONE YEAR OF SATISFACTORY SERVICE.

INSTRUCTIONS TO OPERATING PERSONNEL REGARDING REPORTS OF FAILURE

Report of failure of any part of this equipment, during its service life, shall be made to the Bureau of Ships in accordance with current instructions. The report shall cover all details of the failure and give the date of installation of the equipment. For procedure in reporting failures, see Chapter 31 (mimeographed form) of the Manual of Engineering Instructions, or Bureau of Ships Radio and Sound Bulletin No. 7, dated July 1, 1942, or superseding instructions.

The blank spaces indicated below shall be filled in by operating personnel immediately upon completion of the initial service installation. The date of acceptance by the Navy is stamped on the small plate located on the front panel, immediately below the nameplate. On this same plate, operating personnel shall mark the "date placed in service", using suitable methods and care to avoid damaging the equipment.

Contract NOs-95457 — Date of Contract — 13 December 1941

Serial number of equipment.....

Date of acceptance by the Navy.....

Date of delivery to contract destination.....

Date of completion of installation.....

Date placed in service.....

PROCUREMENT OF REPLACEMENT PARTS

In order to expedite the procurement of replacement parts, all requests or requisitions for replacement material should be addressed to the Bureau of Ships, and should include complete descriptive data covering the part desired, in the following form:

1. Name of part desired.
2. Navy Type number (if assigned) (including prefix and suffix as applicable)
3. Model designation (including suffix) of equipment in which used.
4. Navy Type designation (including prefix and suffix where applicable) of a major unit in which part is used.
5. Symbol designation of part.
6. (a) Navy Drawing Number
   (b) Manufacturer's Drawing Number
7. Rating or other descriptive data.
8. Commercial designation

1 · INTRODUCTION

1-1. FUNCTION

The purpose of the Model RBF-1 Sono-Radio Buoy Receiving Equipment is to receive, at a shore station, the signals which are radiated by sono-radio buoys located at the entrance of a harbor, at distances up to ten miles from the receiving station.

Automatic contact is maintained with any number of buoys, up to ten in any one harbor installation, thus providing protection for the entire harbor at all times.

Any under water sounds produced by a vessel within 1500 to 2000 yards of a transmitter buoy will be detected by the transmitter hydrophone, and amplified to produce frequency modulation of the high frequency carrier signal radiated by the buoy. This signal will then be received by the sono-radio buoy receiving equipment, which provides means of determining which buoy is being received, and establishing the nature of the under water sound and the approximate location of the vessel. This information may then be reported to the harbor patrol.

1-2 LIST OF COMPONENT PARTS

ITEM	QTY	DESCRIPTION	DIMENSIONS	WEIGHT	PACKED IN CASE NO.	CASE DIMENSIONS	CASE WEIGHT
1	1	Mounting Rack, Type CIA-10123	73"Hx27½"Lx20½"W	120 lb.	1	25"Hx82"Lx32"W	520 lb.
2	1	H-V Rectifier Unit, Type CIA-20188	10-15/32"Hx14-3/16"L x19"W	121 lb.	2	12¾"Hx22½"Lx 17¾"W	140 lb.
3	1	Switching Unit, Type CIA-23318	7⅞"Hx15⅝"Lx8⅞"W	21 lb.	1		
4	1	Antenna Switching Unit, Type CIA-23363	2⅞"Hx13½"Lx11"W	13 lb.	1		
5	10	Radio Receivers, Type CIA-46186	5-7/32"Hx14-7/16"Lx19"W	42 lb. each	4-5-6-7-8 (2 each case)	5⅞"Hx22"Lx26½"W	143 lb. per case
6	1	Audio Amplifier and Low Voltage Rectifier Unit, Type CIA-50117	10-15/32"Hx14-3/16"L x19"W	74 lb.	3	12¾"Hx17¾"L x22½"W	90 lb.
7	1	Ground Plane Antenna, Type CIA-66034	3⅜"o.d.x10'	31 lb.		5"Hx10'7"Lx5"W	62 lb.
8	1	Antenna Connecting Cable, Type CIA-62094	.410"o.d. x200'L	20 lb.		11"Hx12½"Lx12½"W	40 lb
9	1	Power Supply Interconnecting Cable, Type CIA-62096	½" o.d. x 11"L	¾ lb.	1		
10	1	Power Source Cable, Type CIA-62095	.530" o.d.x8'4"L	1½ lb.	1		

1-3. General Description of Equipment

The Model RBF-1 Sono-Radio Buoy Receiving Equipment is illustrated in Figure 1. It consists of an artificial ground plane type of antenna, a 200-foot flexible concentric transmission line, and a receiver mounting rack assembly.

The antenna should be mounted at an elevation of at least 100 feet and coupled to the receiving equipment through the 50-ohm transmission line cable. The equipment mounted in the rack assembly consists of one antenna switching unit (Figure 6), ten radio receivers (Figure 7), one high voltage rectifier unit (Figure 11), one automatic switching unit (Figure 17), one audio amplifier and low voltage rectifier (Figure 14), and the necessary interconnecting cables (Figure 20).

Signals from sono-radio buoy transmitters within a radius of approximately ten miles are picked up by the ground plane antenna and conducted through the concentric transmission line to the antenna switching unit. The antenna switching unit is controlled by the automatic switching unit to connect the antenna system to the receiver which it is desired to operate at the moment. The incoming signal is amplified and detected by this receiver unit and delivered through the automatic switching unit to the audio amplifier unit for final amplification and monitoring by the operating personnel.

The ten radio receiver units are each tuned to a different frequency corresponding to the frequencies of the ten sono-radio buoy transmitters planted in the harbor. The automatic switching unit provides instantaneous switching of the antenna connection and receiver output to the audio amplifier in a predetermined sequence, and maintains these connections for a predetermined time interval.

When the switching unit is operating in the "AUTOMATIC" condition, it provides automatic periodic monitoring of each sono-radio buoy channel. When the switching unit is operated in the "MANUAL" condition, the operator may select a desired receiver at will, for continuous monitoring.

The high voltage rectifier unit provides operating voltages for the ten radio receiver units and the audio amplifier. Voltage for the automatic switching unit, and for operating the relays in the antenna switching unit, is obtained from the low voltage rectifier on the audio amplifier chassis.

The receiving equipment operates at any frequency in the range from 70 - 90 megacycles, using frequency modulation, with an undistorted modulation capability of plus or minus 75 kc. The transmitters with which this equipment is to be used are provided with pre-emphasis such that the modulation increases with audio frequency input for the audio range 600-12,000 cycles.

The receiving equipment is constructed with a flat response characteristic, and provided with a de-emphasis circuit which may be switched in or out as desired. The receiver provides good response up to 18 kc. and is equipped with a 17 kc. beat frequency oscillator for converting such supersonic frequencies into audible signals. The gain of each receiver may be individually controlled in order to obtain a uniform signal level in the audio amplifier.

The automatic switching unit is provided with a muting circuit to suppress the receiver signal during the switching interval. Operating personnel at some installations may find it desirable to disconnect this muting circuit.

The mounting rack is constructed of steel channel, finished in a black baked enamel. The front panels of the various units are of 3/16" sheet aluminum, finished with black standard Navy baked wrinkle. The dust covers are constructed of 1/16" sheet steel finished with black standard Navy baked wrinkle. The chassis are fabricated of $\frac{1}{16}$" sheet steel finished with a copper flash and cadmium plating after all holes have been punched. Certain portions of the high frequency preselector units on the receiver chassis are finished with a copper flash and heavy silver plating to provide good conductivity.

The personnel should become familiar with sections 2, 3, and 4 of this instruction book prior to unpacking and proceeding with the installation of the equipment.

The vacuum tubes employed in one complete equipment are as follows:

Ten (10) Receivers Type CIA-46186	1 Audio Amplifier & Low Voltage Rectifier Type CIA-50117	1 High Voltage Rectifier Type CIA-20188
30 type 954 tube	2 type 6J5 tube	4 type 5U4G tube
10 type 955	1 type 6SJ7	
20 type 6AC7	1 type 6V6 GT	
10 type 6SA7	1 type 5U4G	
20 type 6SG7		
10 type 6H6		
10 type 6J5		
10 type VR-150-30		

2. DETAILED DESCRIPTION OF EQUIPMENT

2-1. Mounting Rack, Type CIA-10123

The mounting rack is of welded steel construction, made up of two uprights of heavy structural channel, tied together with steel cross braces, top and bottom, and two heavy steel feet. The overall dimensions are 27½ x 21 x 77⅝ inches, and the weight 120 pounds. The front of the channels are drilled and tapped for panel mounting of all units. The order of assembly from top to bottom is: four radio receiving units, one audio amplifier and low voltage rectifier unit, one high voltage rectifier unit, one automatic switching unit, and six radio receiver units, as shown in Figure 1.

In the left hand channel, ten single conductor shielded cables carry audio voltage from each of the ten receivers to junction terminal strips. From these strips, the audio voltage is connected by a common cable extending back from the left channel in line with the high voltage rectifier unit, and connecting to the left-hand side of the high voltage rectifier unit.

On the right hand channel, two cables in line with the low voltage rectifier and audio unit transfer d-c voltage from the two power supplies of the high voltage rectifier unit, and also filament voltage, to terminal strips in the rack channel. From these terminal strips the supply voltages are distributed in the channel to ten terminal strips in line with each of the ten radio receivers, from which points cables are extended to the input plug of each radio receiver unit.

2-2. High Voltage Rectifier Unit, Type CIA-20188

The high voltage rectifier unit is a panel-mounted unit measuring 10½ x 19 x 14 inches, and weighs 109 pounds. There are two identical rectifier units on one chassis.

Input power at 110-volts a. c. is supplied from terminal strip J-302 on the rear of the chassis, and through fuse F-303 to the primary of No. 1 power supply high-voltage transformer T-301, and through fuse F-304 to transformer T-302 of power supply No. 2. The secondary of each transformer is followed by two 5U4G rectifier tubes in parallel. Tubes V-301 and V-302 of power supply No. 1 are followed by filter components: choke L-301, capacitor C-301, choke L-302, and capacitor C-302.

Tubes V-303 and V-304 of power supply No. 2 are followed by filter components: choke L-303, capacitor C-303, choke L-304, and capacitor C-304. The output voltages of both power supplies are connected to the terminal strip J-302 on the rear of the chassis. The output of each rectifier is 270 volts at 400 milliamperes.

The front panel has a fifteen contact jack J-303 mounted through it, into which is plugged the switching unit (Figure 17). On the left-hand side of the chassis is a screw type jack J-301 to which is supplied audio voltage from each of the ten radio receiving units. From the jack J-301, the ten audio leads go to terminals 1 to 10 of J-303. From terminal 11, the audio return from the switching unit (Figure 17) is connected to J-302. Terminal 12 is supplied with d-c voltage through J-302 from the low voltage rectifier unit (Figure 14). Terminals 13 and 14 are supplied with 110-volts a. c. through fuses F-301 and F-302 from terminal strip J-302. Terminal 15 is the ground terminal for the switching unit.

2-3 Switching Unit, Type CIA-23318

The switching unit shown in Figure 17 is a plug-in unit, mounting on the front panel of the high frequency rectifier unit. It measures 8 x 8½ x 17½ inches, and weighs 28 pounds. This unit switches the desired receiver into the operating circuit to provide monitoring of the corresponding sono-radio buoy transmitter. The switching is accomplished by operating the corresponding antenna relay in the antenna switching unit (Figure 6), and simultaneously switching the input of the audio amplifier to connect it to the desired radio receiver unit. The switching unit accomplishes this purpose either manually or automatically as desired, lighting an indicator lamp on the front of the switching unit to indicate which receiver is in operation.

The switching in this unit is accomplished by means of an automatic magnetic stepping switch, operating three banks of ten contacts each, operation being controlled by a motor-driven pulse timer. One bank of the stepping switch is used to control d-c voltage to the antenna relays and indicator lamps. A second bank switches the audio voltage, while the third bank is used as a part of the controlling circuit in the "AUTOMATIC" position.

D-C voltage is applied through R-501 to one side of an 8-μd. paper condenser C-501, for the stepping circuit, and to two 8-μd. condensers C-502 and C-503 in parellel, for the stepping switch release circuit. When the stepping switch arm of S-506 is in any position from 1 to 9 inclusive, the circuit through C-501 is completed to ground through S-503, S-506, and R-503. Therefore the condenser C-501 will be charged.

The timing motor B-501, which is rotated continuously, will then close the three sets of cam contacts S-505-4 (used as an example since that is the section of S-505 shown selected by time interval switch S-504). The other sets of cam contacts are used only for different time intervals between switching.

When this set of contacts closes the stepping switch, step-magnet coil K-506-1 will be placed directly across C-501, and the discharge current

of C-501 will energize K-506-1 causing the stepping switch S-506 to step up one position higher. This procedure will be repeated each time the motor driven cam causes S-505-4 to close, until the arm of S-506 reaches contact No. 10, at which time the ground side of C-501 circuit will automatically be opened, and the circuit of C-502 and C-503 completed through S-506 and R-503. Therefore these two condensers will be charged, and the next time the cam closes S-505-4, condensers C-502 and C-503 will be discharged through K-506-2 and R-502 which is the release magnet coil of the stepping switch. The contact arm will therefore return to No. 1 position and the cycle will start over again.

Switch S-504 is a time interval switch used to select the desired group of S-505, each of which operate on a different time spacing cam, thus placing the stepping switch magnet coil K-506 across the operating condenser at the desired time interval. A time interval of 2, 3, 5, 7.5, or 10 seconds may be selected, as desired.

Channel range switch S-503 is used to place any one of the stepping switch contacts from 1 to 9 in parallel with No. 10, thus causing the stepping switch to release from any position which may be desired, allowing the scanning of any number of channels up to ten.

The automatic-manual switch S-502, when thrown to the manual position will disconnect the 110-volt a-c supply from the timing motor, stopping the timing circuit, and at the same time cause the d-c circuit to be completed from S-502, terminal 5, to terminal 4, through S-506-4 to K-506-2, through R-502 to S-502 terminal 7, to terminal 8 which is ground. This will energize D-506-2 causing stepping switch S-506 to return to No. 1 position. When S-506 returns to No. 1 position, S-506-4 is automatically opened, removing d-c potential from K-506-2, and S-506 will remain in No. 1 position. With S-506 remaining in No. 1 position, S-501-1 to S-501-2 may be rotated manually, thus selecting the desired audio channel to be connected to the audio amplifier, and at the same time applying d-c potential to the corresponding relay of the antenna switching unit (Figure 6) and lighting the corresponding indicator lamp.

During automatic operation, channel selector switch S-501 should remain in No. 1 position. In this position, selection of the various audio channels, antenna channels, and indicator lamp circuits, is accomplished automatically with the rotation of stepping switch S-506.

A muting circuit is provided in the switching unit for muting the receiver during the instant that switching takes place. Muting is accomplished through contacts 5 and 6 on each of switches S-505-1 to S-505-5. These contacts operate to short circuit the receiver output during each switching operation. If it is desired to leave the muting circuit open, this may be done by opening the ground lead connecting the No. 5 terminals of the muting switches to terminal No. 9 on the "Automatic - Manual" switch S-502.

2-4. Antenna Switching Unit, Type CIA-23363

The antenna switching unit has been designed for the most efficient matching of the antenna transmission line to the ten radio receivers. The unit consists of a shielding box approximately 11 x 11 x 3 inches, in which ten high frequency, low contact-capacity relays have been mounted in a circle with the connections to the contacts toward the center of the circle. The antenna transmission line screw-type connector fastens to the top side of this box and a short stub of 50 ohm coaxial line extends from this socket to the center of the box. From the center, very short solid conductors extend radially to each of the ten relays. From the other side of these relays, short lengths of 50-ohm coaxial line extend to each of the radio receivers, each stub having a single conductor screw-type connector for connection to the radio receiver.

Connection from the antenna transmission line to any one of the radio receiver lines is made through the corresponding relay which is closed by means of voltage supplied from the switching unit (Figure 17), according to the selected sequence and time interval.

2-5. Radio Receiver Unit, Type CIA-46186

The radio receiver units (Figure 7) are frequency modulation receivers, designed for a high degree of sensitivity, the quieting sensitivity for 20 d.b. reduction in noise being better than ten microvolts. The frequency range is 70 to 90 megacycles. The units are designed for standard relay rack mounting, the panels being 5¼ x 19 inches . Each receiver unit is shielded and enclosed in a dust cover, with overall dimensions of 5¼ x 14¼ x 19 inches, and a weight of 42 pounds.

The input circuit is designed to match a 50-ohm transmission line (a stub line from the antenna switching unit of Figure 6).

The r-f preselector section of each receiver employs two stages of tuned-grid r-f amplification, using type 954 tubes, V-101 and V-102, followed by a tuned-grid detector-mixer stage, also using a 954 tube, V-103. The high frequency oscillator utilizes a 955 acorn triode tube, V-111, and operates at a frequency 23 megacycles below the r-f. The r-f section has been designed to have minimum lead lengths, thus providing a high degree of frequency stability.

The oscillator coil T-112 is wound with silver plated nilvar wire, and the fixed capacitors are negative temperature coefficient type, for greater frequency stability. The entire r-f section including the chassis, is silver plated for minimum r-f resistance. In order to secure proper tracking, the r-f circuits are capacity trimmed at the high

frequency end of the tuning range by means of air trimmers C-101-d, C-106, C-111 and C-143, and are inductance trimmed at the low frequency end of the range by means of silver plated, threaded copper cores in all r-f coils. Tuning over the frequency range is accomplished by a 4-gang variable air capacitor driven by a tuning control with a gear ratio of 23 to 1.

The intermediate frequency amplifier consists of four stages. The first stage operates at 23 megacycles, utilizing a 6AC7 metal tube, V-104, and air capacitor tuned transformers, followed by a mixer stage and a fixed 7 megacycle oscillator T-106, using a 6SA7 tube, V-105. This 7 megacycle frequency beats with the 23 megacycle i.f., producing a second intermediate frequency of 16 megacycles. This is followed by a stage of amplification using a 6SG7 tube, V-106, and air capacitor tuned transformers.

Following this is a second 16 megacycle stage, also with a 6SG7 tube, V-107, and air capacitor tuned transformers. This tube is operated with zero grid bias and acts as a first limiter, which causes partial limiting of any change in amplitude of the signal. A-V-C voltage is also taken from this tube at a point between R-124 and C-129. This A-V-C voltage is applied to the 23 megacycle stage, V-104, and the first 16 megacycle stage, V-106. Following this is a third 16 megacycle stage using a 6AC7 tube, V-108, also operating at zero grid bias and acting as a final limiter of any change in signal amplitudes. The grid return circuit of this tube is provided with a test phone jack J-102. A micro-ammeter, scale approximately 0 to 200 micro-amperes, may be inserted in this jack for alignment purposes.

Following this final limiter stage is a frequency detector circuit, commonly known as a discriminator, utilizing a tapped-secondary transformer T-110 and a dual diode 6H6 rectifier tube, V-109. Changes in the i. f., above or below 16 megacycles, produce an unbalance of the rectified voltage across resistors R-135 and R-136, this voltage being balanced at 16 megacycles. Thus when this i.f. is frequency modulated or varied at an audio rate above and below 16 megacycles, the rectified current flowing alternately through resistors R-135 and R-136 will develop an audio frequency potential across the series combination of these resistors. This audio signal is coupled to the grid of the type 6J5 audio amplifier tube, V-110. A micro-ammeter with a scale of 100-0-100 is connected across resistors R-135 and R-136. This meter indicates "0" for a 16-megacycle signal and swings "plus" or "minus" as the frequency changes above or below this value. This meter is used as a tuning indicator and should read "0" when the signal is correctly tuned in.

The audio amplifier tube V-110 works into an audio transformer T-111 which has two secondary windings: one of 600-ohms impedance for transmission to the switching unit and the final audio amplifier; the other of 60-ohms impedance, connected to a phone jack J-103 on the front panel of the receiver.

A d-c potential of 270 volts is supplied from the high-voltage supply unit, and a VR-150-30 voltage regulator tube V-112 is used to supply regulated d-c voltage to the plate and screen of the mixer tube V-103.

The tuning control knob on the front panel drives the ganged tuning condenser through a reduction drive which is provided with a frequency indicating dial calibrated directly over the range of 70 to 90 megacycles. This dial is also calibrated in 23 equal numerical divisions. The tuning drive unit is also provided with a vernier dial which rotates once for each of the 23 divisions of the main dial, and which is calibrated in 100 equal divisions, thus giving a total vernier calibration of 2300 divisions for the frequency range of 70 to 90 megacycles.

The tuning meter M-101 is located on the front panel, and will read "0" for correct tuning of the receiver, swinging "plus" or "minus" as the tuning its varied above or below the center frequency being received. Other controls on the front panel include the audio gain control knob, which varies R-137, and the audio phone jack J-101.

Power is supplied to the unit through a five-contact screw-type connector J-104 located on the right hand side of the chassis, filament voltage remaining on at all times, and d-c voltage being controlled by a toggle switch S-101 on the front panel. A red jewel light on the panel indicates when the light is on. Fuses are provided in the rear left hand corner of the chassis, F-101 in the d-c supply, and F-102 in the filament supply.

Audio output to the switching unit and final audio amplifier is provided through a two-contact screw-type connector J-103 located on the left hand side of the chassis.

The 50-ohm transmission line input to the receiver is connected through a single conductor, polystyrene insulated, screw-type connector J-105 located on the rear left-hand corner of the chassis.

2-6. Audio Amplifier and Low Voltage Rectifier Unit, Type CIA-50117

The audio amplifier and low voltage rectifier unit (Figure 14) is a panel mounted unit. The overall dimensions are 10½ x 19 x 14 inches, and the weight is 74 pounds. This unit includes a two stage audio amplifier, the first stage employing a 6SJ7 tube, V-201, followed by a final stage using a 6V6GT tube, V-202.

The input to the grid of the first tube is from a terminal strip J-207 on the rear of the chassis, through a series resistor R-217. From grid to ground a capacity of .017 μf may be inserted by

means of switch S-206 for the purpose of de-emphasis. With switch S-206 closed, the high audio frequencies are attenuated, the attenuation being a straight line from 600 cycles to 12000 cycles, 20 decibels down at 12000 cycles.

A reduction of harmonic distortion is accomplished by negative feedback, by means of a resistor R-205 from the plate of V-202 to the plate of V-201.

The output of the final amplifier stage is coupled through an output transformer T-201 having two secondary windings. One is a 6-ohm winding, to match a permanent magnet type of six-inch speaker which may be thrown in or out of the circuit by a toggle switch S-201. When the speaker is removed from the circuit, a resistive load R-220 is automatically inserted across the transformer winding to maintain proper loading.

The other secondary winding is a 60-ohm winding which has two low impedance phone jacks, J-201 and J-202, across it. A third phone jack J-203, for high impedance phones, is capacity coupled by C-203 to the plate of V-202.

Still another phone jack J-208 is connected directly to the input of the amplifier ahead of R-217, for audio reception directly from the radio receiver units through the switching unit, in case of failure of the audio amplifier.

Coupled from the plate of the first amplifier tube V-201, is a meter amplifier tube V-203 using a 6J5 triode which works into a power level meter, the sensitivity of which may be varied by inserting various series resistors, R-213 and R-214, by means of switch S-202. This meter is used for determining the output level of the various radio receiver units.

A fixed frequency oscillator circuit is also incorporated in this unit, using a 6J5 triode, V-204, at a frequency of 17 kc. This oscillator output is coupled to the input grid of the first amplifier stage. When this oscillator is turned on by means of switch S-203, the cathode resistor of V-201 is changed in value to cause this tube to act as a distortion amplifier, thus producing efficient mixing of any incoming signal, with the fixed 17 kilocycle signal.

This method is used for detection of a recognition signal, or any supersonic signal which might be picked up by a sono-radio buoy and transmitted to the radio receiver and thus to the amplifier. Such signals will beat with the 17 kc oscillator to produce an audible signal.

D-C voltage for the audio amplifier is obtained from the high voltage rectifier unit (Figure 11), through a switch S-204 on the front panel, and a terminal strip connector J-207 on the back of the unit. There are two identical power supplies in the high voltage unit, and switch S-204 is used to connect the audio amplifier to either of the two.

The rectifier unit incorporated in the audio amplifier chassis is used to supply d-c voltage to the switching unit (Figure 17). Power at 110-volts a.c. is supplied through a screw-type connector J-206, through fuses F-201 and F-202 and switch S-205, to the primary winding of a high voltage transformer T-203 through fuse F-204, and also to the primary of a 6.3 volt filament transformer T-202 through fuse F-203. The secondary of the high voltage transformer is connected to a 5U4G rectifier tube, V-205, the output of which is filtered by a "pi" network filter using two capacitors, C-210 and C-211, and one choke L-202. The output of this filter goes to a terminal of J-207 on the rear of the chassis.

The output of the filament transformer T-202 is connected to the tube in the audio amplifier, and to two screw-type connectors, J-204 and J-205, located on the right-hand side of the chassis, from which it is distributed to all of the radio receiver units by a cable network in the relay rack (Figure 5).

D-C power from the high voltage rectifier unit is supplied to this unit through terminal strip J-207, on the rear, and from there to the two screw-type connectors, J-204 and J-205, for distribution to the radio receiver units.

The 110-volt a-c supply from switch S-205 is also connected to the terminal strip J-207 on the rear of the chassis, from which it is supplied to the high voltage unit through interconnecting cable W-302.

The controls located in the font panel are:

MAIN POWER SWITCH S-205 for controlling 110-volt a-c supply to the power supply units.

JEWEL LIGHT I-201 to indicate when power is on.

SWITCH S-204 with two positions for connecting audio amplifier to either of the two rectifier units of the high voltage unit designated as power supplies No. 1 and No. 2.

DE-EMPHASIS SWITCH S-206 for inserting de-emphasis capacitors C-213 and C-214 from grid of V-201 to ground.

17 KILOCYCLE OSCILLATOR SWITCH S-203 which controls d-c potential to the plate of the oscillator tube V-204, and also changes the value of V-201 cathode resistor.

SPEAKER "ON" AND "OFF" SWITCH S-201

AUDIO GAIN CONTROL R-204, controlling audio input to final audio stage V-202.

AMPLIFIER INPUT PHONE JACK J-208, and two LOW IMPEDANCE PHONE JACKS, J-201 and J-202.

HIGH IMPEDANCE PHONE JACK J-203.

POWER LEVEL METER M-201, calibrated in decibels.

POWER LEVEL METER SENSITIVITY SWITCH S-202, having three positions.

The six-inch speaker is also mounted on this panel. Two handles are provided to facilitate handling of the unit.

2-7. Ground Plane Antenna, Type CIA-66034

The antenna is an artificial ground plane type with a vertical antenna spike one-quarter wave length long at 85 megacycles, and with eight horizontal radial spikes one-quarter wave length long, simulating a horizontal ground plane sheet of good conductivity. The antenna assembly consists of a ten-foot length of standard galvanized iron pipe 1.3 inches inside diameter and 1.66 outside diameter. To the top of this pipe is welded a cast brass flange having eight tapped holes spaced equally around its circumference, for insertion of the eight ground plane radials. The top of this flange is threaded to take a ring-nut which clamps a Navy type 61023 insulator to the top of the flange. A threaded brass stud is mounted in the insulator, projecting up through the top of the insulator. The antenna spike screws onto this stud. A solid No. 12 A.W.G. conductor extends downward for a few inches from the antenna spike stud, through the center of the pipe, to another stud in a ceramic lead-through insulator. One end of the 200-foot flexible concentric transmission line connects to the stud in the ceramic lead-through insulator. Securing clamps are provided for clamping the transmission line to the ten-foot section of vertical pipe.

The overall dimensions of the antenna are approximately 12-feet 7⅜ inches high, by 5-feet 4-inches in diameter. The weight assembled is 32 pounds.

2-8. Antenna Connecting Cable Assembly, Type CIA-62094

The antenna connecting cable (Figure 20) is made up of a 200-foot length of #21B-7/20-XV copolene cable, a flexible concentric transmission line with a characteristic impedance of 50-ohms.

One end, for fastening to the antenna assembly, is equipped with a solder lug. The end of the cable is sealed against moisture by a ceramic insulator secured with polystyrene cement.

The opposite end of the cable is equipped with a single conductor screw-type connector with polystyrene insulation, for connection to the antenna switching unit.

2-9. Power Supply Interconnecting Cable Assembly, Type CIA-62096

The power supply interconnecting cable is provided for making connections between the high voltage rectifier unit (Figure 11) and the audio amplifier and low voltage rectifier unit (Figure 14). This cable (Figure 20) is a laced wire cable eleven inches long, consisting of seven conductors, two spade-type six-contact terminal strips, and two single spade terminals, connected as follows:

TERMINAL NO. 1, No. 16 stranded wire, white with green tracer, connected, to terminal No. 1 of the six-contact terminal strip. This conductor connects one side of the 110-volt a-c line from the low voltage rectifier unit to the high voltage rectifier unit.

TERMINAL NO. 2, No. 16 stranded wire, white with green tracer, connected to terminal No. 2 of the six-contact terminal strip. This conductor connects the second side of the 110-volt a-c line from the low voltage rectifier unit to the high voltage rectifier unit.

CONDUCTOR NO. 3, No. 22 stranded wire, white with red tracer, connected to terminal No. 3, carries high d-c voltage from one of the two power supplies of the high voltage rectifier unit to the low voltage rectifier unit.

CONDUCTOR NO. 4, No. 22 stranded wire, white with red tracer, connected to terminal No. 4, carries high d-c voltage from the second power supply of the high voltage rectifier unit to the low voltage rectifier unit.

CONDUCTOR NO. 5, No. 22 stranded wire, white with orange tracer, conected to terminal No. 5, carries d-c voltage from the low voltage rectifier unit to the high voltage rectifier unit.

CONDUCTOR NO. 6, shielded audio lead connected to terminal No. 6, carries audio voltage from the high voltage rectifier unit to the audio amplifier unit.

CONDUCTOR NO. 7, No. 14 stranded wire, white with yellow tracer, both ends terminated with individual spade terminals, provides the ground conection between the audio amplifier and low voltage rectifier unit, and the high voltage rectifier unit.

2-10. Power Source Cable, Type CIA-62095

The power source cable (Figure 20) consists of two conductors of #14 stranded wire, in a rubber covered cable approximately eight feet long, having a screw-type connector on one end for connection to the low voltage rectifier and audio amplifier unit, and a standard two prong Edison plug on the other end for connection to the 110-volt a-c power source.

3. INSTALLATION

3-1. Ground Plane Antenna, Type CIA-66034

A 100-foot antenna tower is provided by the Bureau of Ships for supporting the artificial ground plane antenna. This antenna tower should be erected before any of the other equipment is

unpacked. The tower should be at as high an elevation above sea level as is practicable, but should not require more than 200-feet of transmission line for connecting the antenna to the receiving equipment. After the tower has been erected, the Type CIA-66034 ground plane antenna should be unpacked at the antenna tower location.

The tower tube should be securely mounted to the tower structure, with the ground plane hub extending at least three feet above the top of the tower.

The antenna spike and the ground plane radials should then be mounted on the hub as shown in Drawing D-5520.1 packed with the antenna, and Figure 1 of this book.

The antenna connecting cable Type CIA-62094 (Figure 20) should be removed from its packing case and connected to the stand-off insulator in the tower pipe. The clamping strap which is assembled to the cable should be strapped around the pipe, and the section of strap extending upward should be connected to the pipe flange (D-5520.1) by means of a 6-32 x ¼ round head screw. Three additional clamps are provided, which should be used to clamp the cable to the tower pipe at intervals of approximately 2½ feet. This cable should then extend down the tower structure and to the location of the receiver installation.

3-2. Model RBF-1 Radio Receiving Equipment

Packing case No. 1 should next be opened. The dust cover, for the high voltage rectifier unit and the audio amplifier and low voltage rectifier unit, should be removed from the compartment constructed in one corner of the case. Inside this dust cover are packed the automatic switching unit Type CIA-23318, and the antenna switching unit Type CIA-23363. These cartons should be removed and laid aside to be opened later for assembly.

The spare parts box containing a spare automatic switching unit type CIA-23318, a spare r-f preselector unit and other equipment spares, and tools for equipment installation, should next be removed from the packing case. The mounting rack Type CIA-10123 (Figure 5) may next be removed and placed in an upright position in the desired location for permanent installation. Sufficient space should be provided around all sides of the rack to allow for convenient assembly and servicing of the equipment. The minimum desirable space around the rack, measured from the extreme outer edges of its base, are as follows:

In front of the rack, 4-feet; on each side, 18 inches; and in the rear, 24-inches. The rack should be secured to the floor or deck by means of lag screws or bolts.

After the rack is in position, the high voltage rectifier unit type CIA-20188 should be removed from packing case No. 2. Two persons will be required for removing this unit from its case and placing it in its position on the rack. A third person will be required for inserting the eight ¼-20 fillister-head screws through the front panel into the tapped holes in the rack. This unit mounts directly above receiver No. 5 (Figure 1) in the rack, in a position marked off by two horizontal white lines on the rack. After all mounting screws are secured, the cable extending from the rear of the left-hand channel of the rack should be connected to the high voltage rectifier unit, and the ferruled nut of the screw-type connector tightened securely with the fingers. The tubes should be unpacked and inserted in their proper sockets.

The audio amplifier and low voltage rectifier unit Type CIA-50117 should next be removed from packing case No. 3. This unit should be mounted on the rack through the front panel in the same manner as the high voltage rectifier unit, and should be directly above it. The two cables extending from the rear of the right-hand channel should be connected to the unit. The tubes should be unpacked and inserted in their proper sockets.

The power supply interconecting cable Type CIA-62096 which is packed in case No. 1, should be unpacked and assembled to the rear of the low voltage rectifier unit and the rear of the high voltage rectifier unit. It should be assembled with the Figures 1 to 6 visible to the assembler and with the single conductor No. 7 (Section 2 - 9) connected to the grounding screws on the rear of the two units.

The power source cable Type CIA-62095, also packed in case No. 1, should be removed and connected to the screw-type fitting on the rear of the low voltage rectifier unit.

The antenna switching unit Type CIA-23363, which has previously been removed from case No. 1, should now be unpacked and assembled by means of five 10-32 x ⅜" round head screws, to the left-hand rack channel extending to the rear of the equipment as shown in Figure 4.

The automatic switching unit Type CIA-23318 which was also removed from case No. 1 previously, should now be unpacked and assembled to the front panel of the high voltage rectifier unit. Two guide pins on the rear of the switching unit should be inserted into the two holes on the front panel, at the same time inserting the male plug on the switching unit into the female receptacle on the front panel. The unit is then securely mounted by means of eight 10-32 x ⅜ round head screws.

The male plug on the end of the cable extending downward from the antenna switching unit Type CIA-23363 should be plugged into the female receptacle on the left-hand side of the switching unit.

The packing cases, Nos. 4 to 8, each containing two radio receiver units Type CIA-46186 individually packed in cartons, and one set of spare

parts for two radio receiver units, should now be unpacked. These spare parts cartons should be stored with the equipment spares which were previously removed from case No. 1.

The radio receivers should now be removed from their cartons and the tubes should be inserted in their proper sockets. The receiver units are identical and interchangeable, so it is not important that they be assembled in any specific order. The first receiver to be assembled should be placed at the extreme bottom of the rack in the position stenciled No. 10. It will be mounted to the rack in the same manner as the other units, by means of four screws through the front panel.

After the receiver is securely mounted, the cable extending from the rear of the right-hand channel, and the cable extending from the rear of the left-hand channel, should be connected to the receiver unit. Also the stub transmission line, extending downward from the antenna switching unit Type CIA-23363, should be connected to the antenna screw-type receptacle on the rear of the radio receiver unit.

The remaining radio receiver units should then be mounted on the rack in the same manner, mounting a receiver in the No. 9 position next and continuing toward the top of the rack.

The antenna conecting cable Type CIA-62094, which has previously been installed and extended to the location of the receiving equipment, should be connected to the screw-type receptacle on the top side of the antenna switching unit Type CIA-23363. The cable should extend down the left-hand side of the mounting rack, and should be clamped to the left-hand channel with three metal clamps provided on the rack channel.

3-3. Installation and Operation Check

Plug power source cable Type CIA-62095 into 110-volt a-c supply, turn main power switch on the low voltage rectifier and audio amplifier unit to the "ON" position, turn the power switch of each radio receiver unit to the "ON" position. On the audio amplifier panel throw de-emphasis switch to "OUT" position, 17 kilocycle oscillator to "OFF" position, speaker switch to the "ON" position, audio gain to full "ON", meter sensitivity switch in the No. "3" position. Turn the volume control on each radio receiver unit to full "ON".

On the switching unit Type CIA-23318, set channel selector switch to No. "1" position, manual-automatic switch to "MANUAL", channel range switch to position No. "10", and the time interval switch to "2" seconds.

In the absence of a transmitter signal, a high noise level should be heard from the speaker. When the receiver is tuned to an unmodulated tranmitter signal which delivers ten microvolts or more to the receiver antenna, the receiver noise should be reduced by at least 20 decibels, which will be an indication that the radio receiver in the No. "1" position is operating properly. If the transmitter is modulated by water noise or other audio frequencies, the sigual should be reproduced by the speaker. The remaining receivers may be checked in the same manner by rotating the channel selector switch to each position up to No. "10".

The channel selector switch should then be returned to the No. "1" position, and the automatic manual switch turned to the "AUTOMATIC" position. The ten receivers should then be selected in succession from No. "1" to No. "10". As each receiver is selected, the corresponding indicator lamp on the front of the switching unit should be lighted.

4. OPERATION

4-1. Manual Operation

The ten sono-radio buoy transmitters should be planted and in operation, each one at a frequency differing from the others. The RBF-1 receiving equipment main power switch should be turned "ON". The power switch of each radio receiver unit should be in the "ON" position and the individual volume controls rotated in a full clockwise position. The meter sensitivity switch on the audio amplifier panel should be in position No. "3". The de-emphasis switch should be in the "OUT" position. The speaker switch should be "ON" and the audio gain control in a full clockwise position. The 17-kc. oscillator switch should be "OFF". The channel selector switch on the automatic switching unit should be set to position No. "1", and the channel range switch to position No. "10". The automatic-manual switch should be in the "MANUAL" position. The radio receiver unit in the No. "1" rack position should now be tuned to the signal of the sono-radio buoy transmitter which it is desired to receive first when using automatic reception sequence. For maximum sensitivity, the antenna trimmer capacitor C-101-d, accessible at the back of the receiver chassis, should be carefully adjusted for maximum quieting of the receiver noise.

The channel selector should then be rotated to position No. "2", and the radio receiver in No. "2" position tuned to the signal of the transmitter desired second in sequence, and the corresponding receiver antenna trimmer adjusted for maximum quieting. This procedure is repeated for all positions up to No. "10". Tuning of the signal is accomplished by rotating the main tuning dial until a signal is approached, which will cause the tuning meter to swing to one side. As the dial comes closer to the signal, the meter will swing back to center and as the dial passes the signal and is detuned on the opposite side, the meter will swing in the opposite direction. Correct tuning is the point where zero setting of the meter

is obtained, and where it will swing either plus or minus as the tuning dial is rotated to tune through the signal.

The output level of the first receiver should be adjusted to the desired level. The meter sensitivity switch should be rotated until a reading is obtained on the power meter in the audio amplifier, and this level noted.

With the channel range switch in the No. "2" position, the output of receiver No. "2" should be adjusted to the same level as receiver No. "1". This should be repeated for all ten receivers.

After all receivers are tuned and their levels adjusted, any one of the ten transmitters may be monitored by rotating the channel selector switch to the proper position.

4-2. Automatic Operation

With all receivers tuned to a transmitter, and their output levels adjusted, automatic scanning of the ten receivers from No. "1" position to No. "10" position will be accomplished continuously when the automatic-manual switch is thrown to "AUTOMATIC". Each receiver may be monitored for the time interval selected by the time interval switch. For automatic operation it is necessary that the channel selector switch remain in the No. "1" position.

If it is desired to scan any number of receivers less than ten, the channel range switch should be set to the number corresponding to the last receiver position which it is desired to scan.

Standard RMA de-emphasis (linear attenuation of the high audio frequencies) is provided, controlled by the de-emphasis switch.

A 17-kilocycle heterodyne oscillator is also provided for beating with any incoming supersonic noises, to produce a signal in the audible range. The oscillator is controlled by a switch on the audio panel.

Each receiver unit is provided with an individual phone jack to accomodate a set of 600-ohm head phones for checking individual receivers, or for continuous monitoring of a single receiver without disturbing the automatic operation. The audio amplifier unit is provided with four phone jacks. One of these phone jacks is for a 600-ohm head set and monitors the signal input to the audio amplifier unit. Two of the phone jacks are for high fidelity head phones of approximately 60-ohms impedance. The remaining phone jack is provided for a high impedance crystal head set which is supplied with the equipment.

In case of failure of the audio amplifier unit, automatic operation may still be maintained by using a set of 600-ohm head phones in the jack marked "Amp. Input", which is tied to the input of the amplifier unit. Using this jack does not allow the use of the de-emphasis circuit or the 17 kilocycle oscillator.

If one of the two power supplies of the high voltage rectifier unit should fail, five radio receiver units will still be maintained in service and the amplifier unit may be operated from either of the two supplies by means of the "B+" switch on the audio amplifier panel.

If failure of the 110-volt a-c supply should occur, any one of the ten radio receiver units may be maintained in service by using the receiver test cable Type CIA-62099, supplied in the spare parts box, for making conection between the receiver and a sono-radio buoy transmitter battery Type CGD-19026, which has reached the end of its useful transmitter service, 200-volts d-c. This one receiver unit may then be tuned manually from one transmitter signal to another, thus maintaining harbor protection until 110-volt a-c service is again available.

5. MAINTENANCE

5-1. General

A periodic check of the equipment will normally be well repaid by uniform and satisfactory performance. All tubes should be tested at regular intervals in a tube analyzer in order to eliminate tubes which have low emission, low transconductance, shorted elements, or microphonic tendencies.

In case the equipment fails to operate, an examination should first be made of all cables and cable connections. The fuses should next be examined and if any of them are blown this will indicate that a short circuit or over-load has occurred in that particular circuit.

If none of the panel indicator lamps are lighted when the power switch is turned on, check the 110-volt a-c power source and the 10-amp. main fuses in the back of the audio amplifier unit. If the panel indicator lamps are lighted but no audio out-put is obtained, each receiver unit may be checked individually by using a set of head-phones in the phone jack in its front panel.

If the receivers are operating, the phones should be plugged into the phone jack marked "AMP. INPUT" on the audio amplifier unit. This will determine if a signal is passing through the switching unit. Next, plug the phones into an audio amplifier output jack to determine if the amplifier is operating.

After the source of trouble has been localized to one section of the equipment, fuses and tubes in that section should be examined. If it is required to examine and service the electrical circuit of any unit, the assembly drawings, the wiring diagram drawings, and the schematic circuit drawings for that unit will help materially in locating the trouble. Also the point to point voltage and resistance chart of Table VI should be consulted.

Should it be desired to operate one of the radio receiver units on a service bench, the receiver test cable Type CIA-72099 should be connected between the receiver and a Type CGU-19026 battery as used with the sono-radio transmitting equipment.

5-2. Receiver Unit Alignment

Should re-alignment of a receiver unit become necessary, the following procedure should be followed:

Connect a micro-ammeter (0-200 scale) into the test jack J-102, as an indicator of correct alignment. Connect an r-f signal generator producing a signal at 16-megacycles, to the control grid, terminal 8 of V-105, and align i-f transformers T-107, T-108, and T-109 for maximum reading on the test meter. Change the output frequency of the signal generator to 23-megacycles, and adjust T-106 to produce a dip between two peaks at resonance, as indicated on the test meter. In all alignment operations, the signal generator should be operated at as low an output level as will give reliable test meter readings.

Move the output connections of the signal generator to the grid (back end connection) of V-103, and align T-104 and T-105 for maximum output as indicated on the test meter. Change the output of the test signal generator to 88-megacycles, rotate the tuning dial of the receiver to 88-megacycles and adjust air trimmer C-143 for maximum output on the test meter. Change the signal generator and receiver dial setting to 72- megacycles and adjust the copper slug in T-112 for maximum output. Return settings to 88-megacycles and readjust C-143; then at 72-megacycles check copper slug again. Continue this procedure until correct tracking is obtained, which is the point where further adjustment of either C-143 or the copper slug will not produce any increase in the output reading.

Move the output connections of the signal generator to the input of V-102 and adjust the generator and receiver dial for 88-megacycles and adjust C-111 for maximum output. Change the frequency settings to 72-megacycles and adjust the copper slug of T-103 for maximum output. Continue this procedure for correct tracking as explained for the previous stage.

Move the output connections of the generator to the input of V-101 and adjust C-106 at 88-megacycles and the slug of T-102 at 72-megacycles for correct tracking as before.

Change the output connections of the generator to the antenna input of the receiver and adjust C-101-A at 88-megacycles and the slug of T-101 at 72-megacycles for correct tracking as in the above procedure.

With the receiver adjusted for maximum output and correct tracking, set the test generator and receiver dial at 88-megacycles and adjust C-137-B of T-110 until the tuning meter M-101 on the receiver panel reads zero and will swing on either side as the frequency is moved above and below 88-megacycles. Adjust the frequency of the generator either above or below 88-megacycles for maximum swing of the meter, and then adjust C-137-A in the discriminator transformer T-110 for the greatest possible swing of this meter; change the frequency of the generator to the other side of 88-megacycles and see if the meter swings the same amount on the other side. If not, readjust C-137-A until a balanced swing is obtained.

To check the receiver for satisfactory operation, listen to the output with a set of headphones, and then apply an unmodulated r-f signal of approximately 5-microvolts at various frequencies over the range, to the antenna input, rotating the tuning dial to whatever frequency is being applied. The amount of signal, when tuned in, should reduce the noise output of the receiver below audible level, or if an output meter or sensitive a-c voltmeter is available, connect it across R-145 and an unmodulated signal of 3 to 6-microvolts should reduce the receiver noise by approximately 20 decibels.

5-3. Automatic Switching Unit

The motor of the automatic switching unit should have oil added at frequent intervals as indicated on the plate of the motor timer door on the right-hand side of the switching unit. Loosen the two thumb screws in the door and allow the door to swing out, but hold it so that the motor oil holes are in an upright position, and add about two drops of oil to the hole on each end of the motor. A can of special oil is supplied in the spare parts box for the equipment.

To change an indicator lamp in the switching unit, the metal strip across the front of the unit containing the numbered caps should be removed, and then the bulb which requires changing may be removed with the special tool supplied with the spare parts.

If at any time trouble should develop in the switching unit such that it operates and releases

on the same impulse, that is if it switches to a position and immediately returns to No. 1 position, or if it will not step at all, the contacts of the switches on the motor timer unit (Figure 18) should be checked to see if they are contacting when operated by the cam. The contact spacing should also be checked as follows: bottom contact on all five switches, that is contacts next to the cam, and the center set of contacts on all five switches should be adjusted to .010 inch. The top contact on all switches should be adjusted to .005 inch.

Other troubles in the circuit may be found by conventional circuit tracing methods with the aid of the schematic circuit and wiring diagram drawings.

5-4. Antenna Switching Unit

If the sensitivity of any receiver should appear to be low, and the fault does not lie in the receiver itself, the relay in the antenna switching unit in the antenna circuit of the receiver should be checked to see that it is making contact, and that the contacts are clean. A piece of very fine sand paper or emery cloth may be used to clean these contacts. If it should be necessary to adjust the contact spacing, the following procedure should be used: Close the relay and adjust the relay stop spacing to .088 inch. Open the relay and adjust the contact spacing to .068 inch; then close the relay and there should be approximately .020 inch clearance between the movable contact arm and ceramic contact arm mover.

Power Requirements:

Each complete installation utilizing ten receivers will operate from a power source of 105 to 120 volts, 50 to 60 cycles, at 6.5 to 7.0 amperes.

TABLE I
LIST OF MAJOR UNITS
MODEL RBF-1 RADIO RECEIVING EQUIPMENT

QUANTITY	SYMBOL GROUP	NAVY TYPE DESIGNATION	NAME OF MAJOR UNIT	ASSEMBLY DRAWING NUMBER
10	101-199	CIA-46186	Radio Receiver	D5539.1A
1	201-299	CIA-50117	Audio Amplifier and L. V. Rectifier Unit	D5517.1A
1	301-399	CIA-20188	H-V Rectifier Unit	D5518.1A
1	401-499	CIA-10123	Mounting Rack	D5495.1
1	501-599	CIA-23318	Switching Unit	D5573.1
1	601-699	CIA-66034	Antenna Assembly	D5520.1
			Component Cables	
1	201-299	CIA-62095	Power Source Cable	D5583.1C
1	301-399	CIA-62096	Power Supply Interconnecting Cable	D5583.1B
1	601-699	CIA-62094	Antenna Connecting Cable	D5583.1A
			Accessories	
1	701-799	CIA-62099	Receiver Test Cable	D5583.1C
1	701-799		Spare Parts Box with Equipment, Spare Parts, Tools and Parts List	D5537.1
5			Spare Parts Cartons for Two CIA-46186 Radio Receivers	D5578.1B

TABLE II

PARTS AND SPARE PARTS LIST BY SYMBOL DESIGNATION FOR MODEL RBF-1 RADIO RECEIVING EQUIPMENT

SYMBOL DESIG.	FUNCTION	DESCRIPTION	NAVY TYPE NUMBER	NAVY SPEC. OR DRAWING NUMBER	MFR.	MFR. DESIG.	SPECIAL TOL. RATING OR MODIFICATION	CONTRACTOR'S DRAWING AND PART NUMBER	SPARE PARTS		ALL SYMBOL DESIGNATIONS INVOLVED
									BOX NUMBER	QUANTITY	
		Motors (Class 21)									
B-501	Prime Mover for Timer (Part of MT-501)	Capacitor Motor, 1 2000 HP., Gear Ratio 900/1, 2 RPM. 80 inch ounces Torque at 7 Watts, 110 Volts A.C., 60 Cycles, Input. D-C Leakage Resistance Winding to Ground—100,000 ohms.		RE13A632B	8	Type KYC-22		D5527-26	0		B-501
		Capacitors (Class 48)									
C-101A	First R-F Tuning Capacitor	Capacitor, Variable Air. Max. Capacity 19 $\mu\mu$F, Min. Capacity 5.5 μF. 1 Rotor and 2 Stator Plates, 0.024" Thick. Plate Spacing, 0.050". Plate Shape, RMA-4.		RE13A632B AN-QQ-S-91	31	S-2774-1-60	Plates Silver Plated	D5540.1	0		C-101A
C-101B	Second R-F Tuning Capacitor	Capacitor, Variable Air. Max. Capacity 24 $\mu\mu$F, Min. Capacity 5 $\mu\mu$F. 2 Rotor and 2 Stator Plates, 0.024" Thick. Plate Spacing, 0.050". Plate Shape, RMA-5. Same Frame as C-101A.		RE13A632B AN-QQ-S-91	31	S-2774-1-60	Plates Silver Plated	D5540.1	0		C-101B, C-101C
C-101C	Third R-F Tuning Capacitor	Same as C-101B									
C-101D	First R-F Trimmer Capacitor	Capacitor, Variable Air. Max. Capacity 5 $\mu\mu$F, Min. Capacity 0.5 $\mu\mu$F. 4 Rotor Plates 0.020" Thick. 2 Stator Plates (Same as C-101A). Plate Spacing, 0.025".		RE13A632B AN-QQ-S-91	31	S-2774-1-60	Plates Silver Plated	D5540.1	0		C-101D
C-101E	Oscillator Tuning Capacitor	Capacitor, Variable Air. Max. Capacity 36.5 $\mu\mu$F, Min. Capacity 0.5 $\mu\mu$F. 3 Rotor and 2 Stator Plates, 0.024" Thick. Plate Spacing, 0.050". Plate Shape, RMA-5. Ganged to C-101A, C-101B, & C-101C.		RE13A632B AN-QQ-S-91	31	S-2774-4-60	Plates Silver Plated	D5541.1	0		C-101E

TABLE II (Cont'd)

PARTS AND SPARE PARTS LIST BY SYMBOL DESIGNATION FOR MODEL RBF-1 RADIO RECEIVING EQUIPMENT

SYMBOL DESIG.	FUNCTION	DESCRIPTION	NAVY TYPE NUMBER	NAVY SPEC. OR DRAWING NUMBER	MFR.	MFR. DESIG.	SPECIAL TOL. RATING OR MODIFICATION	CONTRACTOR'S DRAWING AND PART NUMBER	SPARE PARTS		ALL SYMBOL DESIGNATIONS INVOLVED
									BOX NUMBER	QUANTITY	
		Capacitors (Class 48)									
C-102	First R-F Cathode By-Pass Capacitor	Capacitor, Mica, 0.005 μF. $\pm$ 20%, 500 Volts D.C. Working. Low Loss Case.	-481037-B20 CM35B-512M**	RE48A154F RE13A389K C75.3-1942**	30	Type W		D5539-90	4B2A to 8B2A	25	C-102, C-103, C-104, C-107, C-108, C-109, C-112, C-113, C-115, C-116, C-117, C-118, C-120, C-124, C-125, C-126, C-127, C-131, C-135, C-140, C-149, C-152, C-156, C-157, C-158
C-103	First R-F Screen By-Pass Capacitor	Same as C-102	-481037-B20 CM35B-512M**						1F1A	2	C-204, C-206, C-207
C-104	First R-F Plate Return By-Pass Capacitor	Same as C-102	-481037-B20 CM35B-512M**								
C-105	Coupling Capacitor for T-102	Capacitor, Ceramic, 10 $\mu\mu$F. $\pm$ 10%, 500 Volts D.C. Working. Negative Temp. Coeff. of 750 Parts/Million/Deg. C.		RE13A632B	15	N750K-10		D5539-89	4B2B to 8B2B	2	C-105, C-110
C-106	Second R-F Tuning Trimmer Capacitor	Capacitor, Trimmer, 5-25 $\mu\mu$F. Air Dielectric.		RE13A632B AN-QQ-S-91	35	48A090	Plates Silver Plated	D5541-1	4B2C to 8B2C	1	C-106, C-111, C-143
C-107	Second R-F Cathode By-Pass Capacitor	Same as C-102	-481037-B20 CM35B-512M**								
C-108	Second R-F Screen By-Pass Capacitor	Same as C-102	-481037-B20 CM35B-512M**								
C-109	Second R-F Plate Return By-Pass Capacitor	Same as C-102	-481037-B20 CM35B-512M**								
C-110	Coupling Capacitor for T-103	Same as C-105									

** American War Standards Number is to be used in ordering replacements.

TABLE II (Cont'd)

PARTS AND SPARE PARTS LIST BY SYMBOL DESIGNATION FOR MODEL RBF-1 RADIO RECEIVING EQUIPMENT

SYMBOL DESIG.	FUNCTION	DESCRIPTION	NAVY TYPE NUMBER	NAVY SPEC. OR DRAWING NUMBER	MFR.	MFR. DESIG.	SPECIAL TOL. RATING OR MODIFICATION	CONTRACTOR'S DRAWING AND PART NUMBER	SPARE PARTS		ALL SYMBOL DESIGNATIONS INVOLVED
									BOX NUMBER	QUANTITY	
		Capacitors (Class 48)									
C-111	Third R-F Tuning Trimmer Capacitor	Same as C-106									
C-112	Carrier-Detector-Mixer Screen By-Pass Capacitor	Same as C-102	-481037-B20 CM35B-512M**								
C-113	Carrier-Detector-Mixer Plate Return By-Pass Capacitor	Same as C-102	-481037-B20 CM35B-512M**								
C-114A	First 23 MC. I-F Transformer Primary Trimmer Capacitor (Part of T-104)	Capacitor, Variable, 34-67 $\mu\mu$F Air Dielectric.		RE13A632B AN-QQ-S-91	85	SD-2144	Plates Silver Plated	D5547-4	0		C-114A, C-114B, C-119A, C-119B, C-123A, C-123B, C-128A, C-128B, C-132A, C-132B, C-137A, C-137B
C-114B	First 23 MC. I-F Transformer Secondary Trimmer Capacitor (Part of T-104)	Same as C-114A, Mounted on Same End Plate.									
C-115	23 MC. I-F Amplifier Grid Return By-Pass Capacitor	Same as C-102	-481037-B20 CM35B-512M**								
C-116	23 MC. I-F Amplifier Cathode By-Pass Capacitor	Same as C-102	-481037-B20 CM35B-512M**								
C-117	23 MC. I-F Amplifier Screen By-Pass Capacitor	Same as C-102	-481037-B20 CM35B-512M**								
C-118	23 MC. I-F Amplifier Plate By-Pass Capacitor	Same as C-102	-481037-B20 CM35B-512M**								

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TABLE II (Cont'd)

PARTS AND SPARE PARTS LIST BY SYMBOL DESIGNATION FOR MODEL RBF-1 RADIO RECEIVING EQUIPMENT

SYMBOL DESIG.	FUNCTION	DESCRIPTION	NAVY TYPE NUMBER	NAVY SPEC. OR DRAWING NUMBER	MFR.	MFR. DESIG.	SPECIAL TOL. RATING OR MODIFICATION	CONTRACTOR'S DRAWING AND PART NUMBER	SPARE PARTS		ALL SYMBOL DESIGNATIONS INVOLVED
									BOX NUMBER	QUANTITY	
		Capacitors (Class 48)									
C-119A	Second 23 MC. I-F Transformer Primary Trimmer Capacitor (Part of T-105)	Same as C-114A		RE13A632B AN-QQ-S-91							
C-119B	Second 23 MC. I-F Transformer Secondary Trimmer Capacitor (Part of T-105)	Same as C-114B									
C-120	23 - 16 MC. Converter Screen By-Pass Capacitor	Same as C-102	-481037-B20 CM35B-512M**								
C-121	7 MC. Oscillator Grid Coupling Capacitor (Part of T-106)	Capacitor, Ceramic, 105 $\mu\mu$F ± 10%, 500 Volts DC Working. Negative Temp. Coeff. 750 Parts/Million/Deg. C.		RE13A632B	15	N750L-105		D5545-5	0		C-121
C-122	7 MC. Fixed Oscillator Tuning Capacitor (Part of T-106)	Capacitor, Silver Mica, 1100 $\mu\mu$F ± 5%, 500 Volts DC Working.	CM30E-112J**	C75.3-1942**	30	PT-1100		D5545-6	0		C-122
C-123A	First 16 MC. I-F Transformer Primary Trimmer Capacitor (Part of T-107)	Same as C-114A		RE13A632B AN-QQ-S-91				D5548-4			
C-123B	First 16 MC. I-F Transformer Secondary Trimmer Capacitor (Part of T-107)	Same as C-114B									
C-124	First 16 MC. I-F Amplifier Screen By-Pass Capacitor	Same as C-102	-481037-B20 CM35B-512M**								
C-125	First 16 MC. I-F Amplifier Grid Return By-Pass Capacitor	Same as C-102	-481037-B20 CM35B-512M**								
C-126	First 16 MC. I-F Amplifier Cathode By-Pass Capacitor	Same as C-102	-481037-B20 CM35B-512M**								

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TABLE II (Cont'd)

PARTS AND SPARE PARTS LIST BY SYMBOL DESIGNATION FOR MODEL RBF-1 RADIO RECEIVING EQUIPMENT

SYMBOL DESIG.	FUNCTION	DESCRIPTION	NAVY TYPE NUMBER	NAVY SPEC. OR DRAWING NUMBER	MFR.	MFR. DESIG.	SPECIAL TOL. RATING OR MODIFICATION	CONTRACTOR'S DRAWING AND PART NUMBER	SPARE PARTS		ALL SYMBOL DESIGNATIONS INVOLVED
									BOX NUMBER	QUANTITY	
		Capacitors (Class 48)									
C-127	First 16 MC. I-F Amplifier Plate By-Pass Capacitor	Same as C-102	-481037-B20 CM35B-512M**								
C-128A	Second 16 MC. I-F Transformer Primary Trimmer Capacitor (Part of T-108)	Same as C-114A		RE13A632B AN-QQ-S-91							
C-128B	Second 16 MC. I-F Transformer Secondary Trimmer Capacitor (Part of T-108)	Same as C-114B									
C-129	16 MC. Limiter A-V-C Filter Capacitor	Capacitor, Paper, Oil Filled, 0.25 μF, 600 Volts DC Working.	-48288-A	RE13A488D	21	6BA25		D5539-93	4B2D to 8B2D	3	C-129, C-134, C-141
									1F1B	2	C-201, C-203, C-212
C-130	Second 16 MC. I-F Amplifier and Limiter A-V-C By-Pass Capacitor	Capacitor, Mica, 100 μμF ± 20%, 500 Volts DC Working. Low Loss Case.	-48674-B20 CM25A-101M**	RE48A148C RE48A154F	30	Type 0-100		D5539-94	4B2B to 8B2B	2	C-130, C-133
C-131	Second 16 MC. I-F Amplifier and Limiter Screen and Plate Return By-Pass Capacitor	Same as C-102	-481037-B20 CM35B-512M**	C75.3-1942**							
C-132A	Third 16 MC. I-F Transformer Primary Trimmer Capacitor (Part of T-109)	Same as C-114A						D5548-4			
C-132B	Third 16 MC. I-F Transformer Secondary Trimmer Capacitor (Part of T-109)	Same as C-114B									
C-133	Third 16 MC. I-F Amplifier and Limiter Grid Return By-Pass Capacitor	Same as C-130	-48674-B20 CM25A-101M**								

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TABLE II (Cont'd)

PARTS AND SPARE PARTS LIST BY SYMBOL DESIGNATION FOR MODEL RBF-1 RADIO RECEIVING EQUIPMENT

SYMBOL DESIG.	FUNCTION	DESCRIPTION	NAVY TYPE NUMBER	NAVY SPEC. OR DRAWING NUMBER	MFR.	MFR. DESIG.	SPECIAL TOL. RATING OR MODIFICATION	CONTRACTOR'S DRAWING AND PART NUMBER	SPARE PARTS		ALL SYMBOL DESIGNATIONS INVOLVED
									BOX NUMBER	QUANTITY	
		Capacitors (Class 48)									
C-134	Plate Supply By-Pass Capacitor	Same as C-129	-48288-A								
C-135	Third 16 MC. I-F Amplifier and Limiter Screen By-Pass Capacitor	Same as C-102	-481037-B20 CM35B-512M**								
C-136	Third 16 MC. I-F Amplifier and Limiter Plate Return By-Pass Capacitor (Part of T-110)	Capacitor, Mica, 500 $\mu\mu$F ± 20%, 500 Volts DC Working. Low Loss Case.	-48691-B20 CM25A-511M**	RE48A148C RE48A154F C75.3-1942	30	Type 0-500		D5549-17	0		C-136
C 137A	Discriminator Transformer Primary Trimmer Capacitor (Part of T-110)	Same as C-114A		RE13A632B AN-QQ-S-91				D5549-4	0		
C-137B	Discriminator Transformer Secondary Trimmer Capacitor (Part of T-110)	Same as C-114B									
C-138	Discriminator Transformer Coupling Capacitor (Part of T-110)	Capacitor, Ceramic, 25 $\mu\mu$F ± 10%, 500 Volts DC Working. Negative Temp. Coeff. 750 Parts/Million/Deg. C.			15	N750L-25		D5549-16	0		C-138
C-139	Discriminator Detector Load R-F By-Pass Capacitor	Capacitor, Mica, 50 $\mu\mu$F ± 10%, 500 Volts DC Working. Low Loss Case.	-48895-B10 CM25A-510K**	RE48A148C RE48A154F C75.3-1942	30	Type 0-50		D5539-96	4B2B to 5B2B	1	C-139
C-140	Audio Coupling Capacitor	Same as C-102	-481037-B20 CM35B-512M**								
C-141	A-F Amplifier Plate Return By-Pass Capacitor	Same as C-129	-48288-A								

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TABLE II (Cont'd)

PARTS AND SPARE PARTS LIST BY SYMBOL DESIGNATION FOR MODEL RBF-1 RADIO RECEIVING EQUIPMENT

SYMBOL DESIG.	FUNCTION	DESCRIPTION	NAVY TYPE NUMBER	NAVY SPEC. OR DRAWING NUMBER	MFR.	MFR. DESIG.	SPECIAL TOL. RATING OR MODIFICATION	CONTRACTOR'S DRAWING AND PART NUMBER	SPARE PARTS BOX NUMBER	SPARE PARTS QUANTITY	ALL SYMBOL DESIGNATIONS INVOLVED
		Capacitors (Class 48)									
C-142	H-F Oscillator Plate Return By-Pass Capacitor	Capacitor, Mica, 300 $\mu\mu$F ± 20%, 500 Volts DC Working. Low Loss Case.	-481014-B20 CM25A-301M**	RE48A148C RE48A154F C75.3-1942**	30	Type 0-300		D5539-98	4B2B to 8B2B	7	C-142, C-145, C-146, C-147, C-148, C-150, C-151,
C-143	H-F Oscillator Tuning Trimmer Capacitor	Same as C-106							1F1A	1	C-208
C-144	H-F Oscillator Coupling Capacitor	Capacitor, Ceramic, 50 $\mu\mu$F ± 10%, 500 Volts DC Working. Negative Temp. Coeff. 750 Parts/Million/Deg. C.	-481024-6		15	N750L-50		D5539-99	4B2B to 8B2B	1	C-144
C-145	Carrier Detector-Mixer Cathode By-Pass Capacitor	Same as C-142	-481014-B20 CM25A-301M**								
C-146	H-F Oscillator Grid Leak By-Pass Capacitor	Same as C-142	-481014-B20 CM25A-301M**								
C-147	First R-F Filament By-Pass Capacitor	Same as C-142	-481014-B20 CM25A-301M**								
C-148	Second R-F Filament By-Pass Capacitor	Same as C-142	-481014-B20 CM25A-301M**								
C-149	23-16 MC. Converter Plate Return By-Pass Capacitor	Same as C-102	-481037-B10 CM35B-512M**								
C-150	Carrier Detector-Mixer Filament By-Pass Capacitor	Same as C-142	-481014-B20 CM25A-301M**								
C-151	H-F Oscillator Filament By-Pass Capacitor	Same as C-142	-481014-B20 CM25A-301M**								

** American War Standards Number is to be used in ordering replacements.

TABLE II (Cont'd)

PARTS AND SPARE PARTS LIST BY SYMBOL DESIGNATION FOR MODEL RBF-1 RADIO RECEIVING EQUIPMENT

SYMBOL DESIG.	FUNCTION	DESCRIPTION	NAVY TYPE NUMBER	NAVY SPEC. OR DRAWING NUMBER	MFR.	MFR. DESIG.	SPECIAL TOL. RATING OR MODIFICATION	CONTRACTOR'S DRAWING AND PART NUMBER	SPARE PARTS		ALL SYMBOL DESIGNATIONS INVOLVED
									BOX NUMBER	QUANTITY	
		Capacitors (Class 48)									
C-152	Tuning Meter By-Pass Capacitor	Same as C-102	-481037-B20 CM35B-512M**								
C-153	H-F Oscillator Padder Capacitor	Capacitor, Ceramic, 20 $\mu\mu$F ± 10%, 500 Volts DC Working. Negative Temp. Coeff. 750 Parts/Million/Deg. C.			15	N750K-20		D5539-88	4B2B to 8B2B	1	C-153
C-154	H-F Oscillator Plate Circuit Parasitic Filter Capacitor	Capacitor, Silver Mica, 4 $\mu\mu$F ± 10%, 500 Volts DC Working. Low Loss Case.	CM20E-050M**	C75.3-1942**	1	1469LS-4		D5539-97	4B2B to 8B2B	2	C-154, C-155
C-155	First R-F Tuning Fixed Trimmer Capacitor	Same as C-154	CM20E-050M**								
C-156	Plate Supply R-F Filter Capacitor	Same as C-102	-481037-B20 CM35B-512M**								
C-157	Filament Supply R-F Filter Capacitor	Same as C-102	-481037-B20 CM35B-512M**								
C-158	16 MC. Limiter I-F Filter A-V-C By-Pass Capacitor	Same as C-102	-481037-B20 CM35B-512M**								
C-201	60 ohm Output Audio Response Correction Capacitor	Same as C-129	-48288-A					D5517-61			
C-202	Second A-F Grid Coupling Capacitor	Capacitor, Mica, 0.01 μF ± 20%, 500 Volts DC Working.	CM40A-103M**	C75.3-1942**	30	Type R		D5517-39	1F1A	1	C-202, C-213
C-203	10,000 ohm Output Coupling Capacitor	Same as C-129	-48288-A					D5517-61			
C-204	Audio Level Meter Amplifier Grid Coupling Capacitor	Same as C-102	-481037-B20 CM35B-512M**					D5517-27			

** American War Standards Number is to be used in ordering replacements.

TABLE II (Cont'd)

PARTS AND SPARE PARTS LIST BY SYMBOL DESIGNATION FOR MODEL RBF-1 RADIO RECEIVING EQUIPMENT

SYMBOL DESIG.	FUNCTION	DESCRIPTION	NAVY TYPE NUMBER	NAVY SPEC. OR DRAWING NUMBER	MFR.	MFR. DESIG.	SPECIAL TOL. RATING OR MODIFICATION	CONTRACTOR'S DRAWING AND PART NUMBER	SPARE PARTS		ALL SYMBOL DESIGNATIONS INVOLVED
									BOX NUMBER	QUANTITY	
		Capacitors (Class 48)									
C-205	Audio Level Meter Coupling Capacitor	Capacitor, Paper, Oil Filled, 0.1 μF, 600 Volts DC Working.	-48197-A	RE13A488D	21	6BA10		D5517-59	1F1C	1	C-205
C-206	17 KC Oscillator Plate By-Pass Capacitor	Same as C-102	-481037-B20 CM35B-512M**					D5517-27			
C-207	17 KC Oscillator Output Coupling Capacitor	Same as C-102	-481037-B20 CM35B-512M**					D5517-27			
C-208	17 KC Oscillator Grid Coupling Capacitor	Same as C-142	-481014-B20 CM25A-301M**					D5517-33			
C-209	17 KC Oscillator Tuning Capacitor	Capacitor, Mica, 0.007 μF ± 20%, 500 Volts DC Working.	CM35A-682M**	C75.3-1942**	30	Type W		D5517-31	1F1A	1	C-209, C-214
C-210	L-V Rectifier Filter Output Capacitor	Capacitor, Paper, Oil Filled, 8 μF, 600 Volts DC Working.	-7682	RE13A488D	21	6SALS00		D5517-65	1F7	5	C-210, C-211, C-301, C-302, C-303, C-304, C-501, C-502, C-503
C-211	L-V Rectifier Filter Input Capacitor	Same as C-210	-7682								
C-212	First A-F Amplifier Screen By-Pass Capacitor	Same as C-129	-48288-A					D5517-61			
C-213	Audio De-Emphasis Capacitor	Same as C-202	CM40A-103M**								
C-214	Audio De-Emphasis Capacitor	Same as C-209	CM35A-682M**								
C-301	Power Supply Number One First Filter Capacitor	Same as C-210	-7682					D5518-18			
C-302	Power Supply Number One Second Filter Capacitor	Same as C-210	-7682					D5518-18			

** American War Standards Number is to be used in ordering replacements.

TABLE II (Cont'd)
PARTS AND SPARE PARTS LIST BY SYMBOL DESIGNATION FOR MODEL RBF-1 RADIO RECEIVING EQUIPMENT

SYMBOL DESIG.	FUNCTION	DESCRIPTION	NAVY TYPE NUMBER	NAVY SPEC. OR DRAWING NUMBER	MFR.	MFR. DESIG.	SPECIAL TOL. RATING OR MODIFICATION	CONTRACTOR'S DRAWING AND PART NUMBER	SPARE PARTS		ALL SYMBOL DESIGNATIONS INVOLVED
									BOX NUMBER	QUANTITY	
		Capacitors (Class 48)									
C-303	Power Supply Number Two First Filter Capacitor	Same as C-210	-7682					D5518-18			
C-304	Power Supply Number Two Second Filter Capacitor	Same as C-210	-7682					D5518-18			
C-501	Minor Switch Operate Coil Voltage Capacitor	Same as C-210	-7682					D5573-40			
C-502	Minor Switch Release Coil Voltage Capacitor	Same as C-210	-7682					D5573-40			
C-503	Minor Switch Release Coil Voltage Capacitor	Same as C-210	-7682					D5573-40			
C-504	Motor Capacitor (Furnished with Motor B-501)	Capacitor, Paper, Oil Filled, 0.8 μF, 220 Volts AC Working.			45	VC1163A		D5527-26	0		C-504
		Miscellaneous Electrical Parts (Class 10)									
E-101	Volume Control Knob and Skirt	Knob, Molded Bakelite with Metal Skirt. Number 0 to 10. Skirt 1½" O.D. Brass Bushing, Tapped for #8-32 Set Screw. Fits ¼" Shaft.		RE13A632B	2	D5539-(1)40 & D5539-(1)45		D5539-40 & D5539-45	0		E-101, E-202
E-102	Tuning Knob	Hand Wheel. 2-5/16" O.D. Molded Bakelite. Brass Bushing, Tapped for #8-32 Set Screw. Fits ¼" Shaft.		RE13A632B	2	D5539-(1)46		D5539-46	0		E-102
E-201	Gain Control Knob and Skirt	Same as E-101									

TABLE II (Cont'd)

PARTS AND SPARE PARTS LIST BY SYMBOL DESIGNATION FOR MODEL RBF-1 RADIO RECEIVING EQUIPMENT

SYMBOL DESIG.	FUNCTION	DESCRIPTION	NAVY TYPE NUMBER	NAVY SPEC. OR DRAWING NUMBER	MFR.	MFR. DESIG.	SPECIAL TOL. RATING OR MODIFICATION	CONTRACTOR'S DRAWING AND PART NUMBER	SPARE PARTS BOX NUMBER	SPARE PARTS QUANTITY	ALL SYMBOL DESIGNATIONS INVOLVED
		Miscellaneous Electrical Parts (Class 10)									
E-202	Meter Sensitivity Switch Knob	Pointer Knob, Black Molded Bakelite. Brass Bushing, Tapped for #8-32 Set Screw. Fits ¼" Shaft. Knob 1¾" Long.		RE13A632B	25	S-246-3L		D5517-64	0		E-202, E-501, E-502, E-503, E-504
E-501	Channel Selector Switch Knob	Same as E-202		RE13A632B				D5573-26			
E-502	Automatic-Manual Switch Knob	Same as E-202		RE13A632B				D5573-26			
E-503	Channel Range Switch Knob	Same as E-202		RE13A632B				D5573-26			
E-504	Time Interval Switch Knob	Same as E-202		RE13A632B				D5573-26			
		Electrical Parts (Class 66)									
E-601	Receiving Antenna Spike	¼ Wave Antenna. Constructed of ¼" Dia. Chrome Moly Tubing with Threaded Coupling for Securing to CIA-66034 Antenna Assembly.			2	D5520-(6)5 & D5520-(6)8		D5520-5 & D5520-8	0		E-601
		(Class 66)									
E-602	Ground Plane Radial	Radial Constructed of ¼" Chrome Moly Tubing with Threaded Coupling for Securing to CIA-66034 Antenna Assembly.			2	D5520-(6)6 & D5520-(6)7		D5520-6 & D5520-7	*		E-602
		(Class 61)									
E-603	Antenna Insulator	Pyrex Glass Shell Type, with hole for ⅜" Dia. Stud, and with 2½" Dia. Skirt.	-61023	RE13A717F	13	61023		D5520-17	*	1	E-603
		(Class 61)									
E-604	Feed-through Insulator for Antenna Transmission Line	Ceramic Insulator, Feed-through Type. Body Height: Top 5/16", Bottom 1/16". Panel Hole 1/16". Hardware—#6-32 Screw.			22	#44		D5520-21	0		E-604

* Shipped with Type CIA-66034 Receiving Antenna.

TABLE II (Cont'd)
PARTS AND SPARE PARTS LIST BY SYMBOL DESIGNATION FOR MODEL RBF-1 RADIO RECEIVING EQUIPMENT

SYMBOL DESIG.	FUNCTION	DESCRIPTION	NAVY TYPE NUMBER	NAVY SPEC. OR DRAWING NUMBER	MFR.	MFR. DESIG.	SPECIAL TOL. RATING OR MODIFICATION	CONTRACTOR'S DRAWING AND PART NUMBER	SPARE PARTS BOX NUMBER	SPARE PARTS QUANTITY	ALL SYMBOL DESIGNATIONS INVOLVED
		Fuses (Class 28)									
F-101	D-C Plate Supply Fuse	Fuse, Cartridge Type, ¼ Amp., 250 Volts, 1¼" Overall Length, ¼" Dia. Ferrules.			27	3AG ¼		D5539-114	4B2E to 8B2E	20	F-101
F-102	A-C Filament Supply Fuse	Fuse, Cartridge Type, 5 Amp., 25 Volts, 1¼" Overall Length, ¼" Dia. Ferrules.			27	3AG 5		D5539-115	4B2F to 8B2F	20	F-102
F-201	A-C Line Fuse (main supply)	Fuse, Cartrdige Type, 10 Amp., 25 Volts, 1¼" Overall Length, ¼" Dia. Ferrules.			27	3AG 10		D5517-79	1F1F	20	F-201, F-202
F-202	A-C Line Fuse (main supply)	Same as F-201									
F-203	A-C Line Fuse (Filament Transformer)	Fuse, Cartridge Type, 3 Amp., 25 Volts, 1¼" Overall Length, ¼" Dia. Ferrules.			27	3AG 3		D5517-80	1F1E	30	F-203, F-303, F-304
F-204	A-C Line Fuse (Plate Transformer)	Fuse, Cartridge Type, 1 Amp., 25 Volts, 1¼" Overall Length, ¼" Dia. Ferrules.			27	3AG 1		D5517-81	1F1E	10	F-204
F-301	A-C Line Fuse (Timer Motor)	Fuse, Cartridge Type, ⅛ Amp., 250 Volts, 1¼" Overall Length, ¼" Dia. Ferrules.			27	3AG ⅛		D5518-22	1F1D	20	F-301, F-302
F-302	A-C Line Fuse (Timer Motor)	Same as F-301						D5518-22			
F-303	A-C Line Fuse (Plate Supply Number 1 Transformer)	Same as F-203						D5518-23			
F-304	A-C Line Fuse (Plate Supply Number 2 Transformer)	Same as F-203						D5518-23			
		Miscellaneous Hardware (Class 10)									
H-101	Dust Cover Mounting Thumb Screw	Thumb Screw, #12-28 Machine Screw Thread. Overall Length 1-1/16", Max. O.D. ½". Knurled Head. Brass, Nickel Plated.			2	D5539-(1)27		D5539-27	0		H-101

TABLE II (Cont'd)
PARTS AND SPARE PARTS LIST BY SYMBOL DESIGNATION FOR MODEL RBF-1 RADIO RECEIVING EQUIPMENT

SYMBOL DESIG.	FUNCTION	DESCRIPTION	NAVY TYPE NUMBER	NAVY SPEC. OR DRAWING NUMBER	MFR.	MFR. DESIG.	SPECIAL TOL. RATING OR MODIFICATION	CONTRACTOR'S DRAWING AND PART NUMBER	SPARE PARTS		ALL SYMBOL DESIGNATIONS INVOLVED
									BOX NUMBER	QUANTITY	
		Miscellaneous Hardware (Class 10)									
H-102	R-F Section Cover Thumb Screw	Thumb Screw, #8-32 Machine Screw Thread. Overall Length 25/32", Max. O.D. 13/32". Knurled Head. Brass Nickel Plated.			2	D5539-(1)50		D5539-50	0		H-102
H-401	Rack Mounting Screws (for use when rack is to be mounted to a floor or deck)	Lag Screws, ½" x 3", Standard Square Head, Malleable Iron. Parkerized Finish.		RE13A632B	2	D5495-(4)27		D5495-27	1F3	2†	H-401
H-402	Expansion Shield for Lag Screw (H-401) (for use when rack is to be mounted on concrete)	Standard Expansion Shields for Lag Screws (H-401) Two Parts, Malleable Iron, Galvanized.		RE13A632B	2	D5495-(4)34 Star #1900		D5495-34	1F3	2†	H-402
H-403	Washer for Beneath Head of H-401	Standard Washer for ½" Bolt. O.D., 1⅜"; I.D., 9/16"; Thickness, #12 Wire Gauge. Wrought Iron.		RE13A632B	2	D5495-(4)37	Cadmium Plated	D5495-37	1F3	2†	H-403
H-501	Motor Timer Door Thumb Screw	Thumb Screw, #8-32 Machine Screw Thread. Overall Length 25/32", Max. O.D. 13/32". Knurled Head. Brass, Black Nickel Plated.		RE13A632B	2	D5573-(5)15		D5573-15	0		H-501
H-601	Antenna Insulator Ring Nut	2¼" Hex., 2⅝"-16 Threads, Cadmium Plated.		RE13A632B	2	D5499-(6)22		D5499-22	0		H-601
H-602	Antenna Stud Nut	⅜-24 American Std. Regular Nut.		RE13A632B	2	D5520-(6)22	Cadmium Plated	D5520-22	°	1	H-602
		Miscellaneous Accessory Tools (Class 10)									
H-701	Insulated (Fibre) Screwdriver for Alignment	Fibre Screwdriver. 7/32" Dia. 7" Long. Fibrite. Both Ends Flattened.		RE13A632B	5	#815			1F1G	1††	H-701
H-702	General Purpose Screwdriver	Machinest Type Screwdriver, Plastic Handle. Blade: ¼" x 4". Round Shank.		RE13A632B	16	#RC 4 Irwinoid			1F1H	1††	H-702

†† Accessories packed in Spare Parts Box.
† 8 Accessories included with 2 Spares.

° Shipped with Type CIA-66034 Receiving Antenna.

TABLE II (Cont'd)
PARTS AND SPARE PARTS LIST BY SYMBOL DESIGNATION FOR MODEL RBF-1 RADIO RECEIVING EQUIPMENT

SYMBOL DESIG.	FUNCTION	DESCRIPTION	NAVY TYPE NUMBER	NAVY SPEC. OR DRAWING NUMBER	MFR.	MFR. DESIG.	SPECIAL TOL. RATING OR MODIFICATION	CONTRACTOR'S DRAWING AND PART NUMBER	SPARE PARTS		ALL SYMBOL DESIGNATIONS INVOLVED
									BOX NUMBER	QUANTITY	
		Miscellaneous Accessory Tools (Class 10)									
H-703	General Purpose Plier	Long Nose Plier. Nose Length 2¾". Overall Length 6". Polished Head. Handles, Temper Blued.		RE13A632B	24	#301-6			1F1J	1††	H-703
H-704	Wire Cutting and Stripping Plier	Oblique Cutting Plier. Overall Length 6". 0.052" Dia. Wire Stripping Notch 3/16" from Hinge. Polished Head. Handles, Temper Blued.		RE13A632B	24	#240-6			1F1K	1††	H-704
H-705	Set Screw Wrench	#8 Standard Wrench for use with "Allen Head" Type Set Screws.		RE13A632B	29	#8 Allen Wrench			1F1L	1††	H-705
H-706	Set Screw Wrench	#10 Standard Wrench for use with "Allen Head" Type Set Screws.		RE13A632B	29	#10 Allen Wrench			1F1L	1††	H-706
H-707	Panel Lamp Extractor for I-501 to I-510 Lamps	Panel Lamp Extractor for Western Electric #2Y Switchboard Type Lamps. Wooden Handle.		RE13A632B	42	#2Y Lamp Extractor			1F1M	1††	H-707
H-708	Antenna Ring Nut Wrench	Single Open End Wrench. 2¼" Opening, 5/16" Thick, 8½" Long. Chrome-Vanadium Steel, Forged.		RE13A632B	9	#1272		D5520-31	*	1††	H-708
H-709	General Purpose Open End Wrench	Double Open End Wrench. 9/16" x ⅝" Openings. 6-7/16" Long. Chrome-Vanadium Steel, Forged.		RE13A632B	37	S-1820		D5520-32	*	1††	H-709
H-710	Oil Can for Timer Motor	Flat Can with Screw Cap.		RE13A632B	8				1F8	1††	H-710
		Headphones (Class 49)									
HP-701	Headphones	High Fidelity Crystal Headphones. Response Uniform to 12,000 Cycles, Compensated for Ear Coupling. High Impedance. Double Head Band, Leather Covered.		RE13A632B	10	Type A-1 #205			1F4	1††	HP-701

†† Accessories packed in Spare Parts Box.

* Shipped with Type CIA-66034 Receiving Antenna.

TABLE II (Cont'd)
PARTS AND SPARE PARTS LIST BY SYMBOL DESIGNATION FOR MODEL RBF-1 RADIO RECEIVING EQUIPMENT

SYMBOL DESIG.	FUNCTION	DESCRIPTION	NAVY TYPE NUMBER	NAVY SPEC. OR DRAWING NUMBER	MFR.	MFR. DESIG.	SPECIAL TOL. RATING OR MODIFICATION	CONTRACTOR'S DRAWING AND PART NUMBER	SPARE PARTS		ALL SYMBOL DESIGNATIONS INVOLVED
									BOX NUMBER	QUANTITY	
		Miscellaneous Indicators (Class 10)									
I-101	Main Tuning Dial Indicator Lamp	Pilot Lamp, Screw Type Base, 6-8 Volts 0.15 Amp.		RE13A632B	17	#47 Mazda		D5539-113	4B2G to 8B2G 1F1N	12 2	I-101, I-102, I-103 I-201
I-102	Band Spread Dial Indicator Lamp	Same as I-101		RE13A632B							
I-103	Power On-Off Indicator Lamp	Same as I-101		RE13A632B							
I-201	Main Power On-Off Indicator Lamp	Same as I-101		RE13A632B							
I-501	"Channel in Operation" Lamp for Receiver #1	Indicator Lamp, Switchboard Type, 48 Volts, 0.030 Amp.			42	#2Y		D5573-30	1F1P	20	I-501, I-502, I-503, I-504, I-505 I-506, I-507, I-508, I-509, I-510
I-502	"Channel in Operation" Lamp for Receiver #2	Same as I-501									
I-503	"Channel in Operation" Lamp for Receiver #3	Same as I-501									
I-504	"Channel in Operation" Lamp for Receiver #4	Same as I-501									
I-505	"Channel in Operation" Lamp for Receiver #5	Same as I-501									
I-506	"Channel in Operation" Lamp for Receiver #6	Same as I-501									
I-507	"Channel in Operation" Lamp for Receiver #7	Same as I-501									

TABLE II (Cont'd)
PARTS AND SPARE PARTS LIST BY SYMBOL DESIGNATION FOR MODEL RBF-1 RADIO RECEIVING EQUIPMENT

SYMBOL DESIG.	FUNCTION	DESCRIPTION	NAVY TYPE NUMBER	NAVY SPEC. OR DRAWING NUMBER	MFR.	MFR. DESIG.	SPECIAL TOL. RATING OR MODIFICATION	CONTRACTOR'S DRAWING AND PART NUMBER	SPARE PARTS		ALL SYMBOL DESIGNATIONS INVOLVED
									BOX NUMBER	QUANTITY	
		Miscellaneous Indicators (Class 10)									
I-508	"Channel in Operation" Lamp for Receiver #8	Same as I-501									
I-509	"Channel in Operation" Lamp for Receiver #9	Same as I-501									
I-510	"Channel in Operation" Lamp for Receiver #10	Same as I-501									
I-511	#1 Lamp Cap	Lamp Cap to Fit Standard Switchboard Mounting, White Background, Black Numeral. No. 1 Numeral.			42	#72L-1		D5573-29	0		I-511
I-512	#2 Lamp Cap	Same as I-511 except No. 2 Numeral.			42	#72L-2			0		I-512
I-513	#3 Lamp Cap	Same as I-511 except No. 3 Numeral.			42	#72L-3			0		I-513
I-514	#4 Lamp Cap	Same as I-511 except No. 4 Numeral.			42	#72L-4			0		I-514
I-515	#5 Lamp Cap	Same as I-511 except No. 5 Numeral.			42	#72L-5			0		I-515
I-516	#6 Lamp Cap	Same as I-511 except No 6 Numeral.			42	#72L-6			0		I-516
I-517	#7 Lamp Cap	Same as I-511 except No. 7 Numeral.			42	#72L-7			0		I-517
I-518	#8 Lamp Cap	Same as I-511 except No. 8 Numeral.			42	#72L-8			0		I-518
I-519	#9 Lamp Cap	Same as I-511 except No. 9 Numeral.			42	#72L-9			0		I-519
I-520	#10 Lamp Cap	Same as I-511 except No. 10 Numeral.			42	#72L-10			0		I-520

TABLE II (Cont'd)
PARTS AND SPARE PARTS LIST BY SYMBOL DESIGNATION FOR MODEL RBF-1 RADIO RECEIVING EQUIPMENT

SYMBOL DESIG.	FUNCTION	DESCRIPTION	NAVY TYPE NUMBER	NAVY SPEC. OR DRAWING NUMBER	MFR.	MFR. DESIG.	SPECIAL TOL. RATING OR MODIFICATION	CONTRACTOR'S DRAWING AND PART NUMBER	SPARE PARTS		ALL SYMBOL DESIGNATIONS INVOLVED
									BOX NUMBER	QUANTITY	
		Jacks and Receptacles (Class 49)									
J-101	Output Meter Test Jack	Jack, Phone Type, 4 Springs. Contacts: Break Two. Metal Parts to Meet 200 Hour Salt Spray Test.		RE13A481E	41	ST-915	Silver Contacts	D5542.1	0		J-101, J-102, J-201, J-202, J-203 J-208
J-102	Grid Current Meter Test Jack	Same as J-101							0		
J-103	Audio Receptacle	Receptacle, Male, Box Mounting, 2-Pins, Threaded Coupling Shell.		AN-3102-12S-3P	4			D5539-109	0		J-103
J-104	Power Receptacle	Receptacle, Male, Box Mounting, 5-Pins, Threaded Coupling Shell.		AN-3102-18-683P	4			D5539-110	0		J-104
J-105	Antenna Receptacle	Receptacle, Male, Box Mountling, Single Pin, Threaded Coupling Shell.		AN-3102-10S12-2PY	4			D5539-111	0		J-105
J-201	60-ohm Phone Jack	Same as J-101									
J-202	60-ohm Phone Jack	Same as J-101									
J-203	10,000-ohm Phone Jack	Same as J-101									
J-204	Power Receptacle	Receptacle, Male, Box Mounting, 5-Pins, Threaded Coupling Shell.		AN-3102-22-5P	4			D5517-72	0		J-204, J-205
J-205	Power Receptacle	Same as J-204									
J-206	110 V. A-C Power Receptacle	Receptacle, Male, 4-Pins, Threaded Coupling Shell.		RE13A632B	4	#92-C1		D5517-60	0		J-206
J-207	Power and Audio Connector	Terminal Connecting Strip, Six Screw Type Terminals.		RE13A632B	23	#6-6		D5517-56	0		J-207, J-302
J-208	Amplifier Input Jack	Same as J-101									
J-301	Audio Receptacle	Receptacle, Male, Box Mounting, 14-Pins, Threaded Coupling Shell.		AN-3102-20-1P	4			D5518-24	0		J-301
J302	Power and Audio Connector	Same as J-207						D5518-20			

TABLE II (Cont'd)
PARTS AND SPARE PARTS LIST BY SYMBOL DESIGNATION FOR MODEL RBF-1 RADIO RECEIVING EQUIPMENT

SYMBOL DESIG.	FUNCTION	DESCRIPTION	NAVY TYPE NUMBER	NAVY SPEC. OR DRAWING NUMBER	MFR.	MFR. DESIG.	SPECIAL TOL. RATING OR MODIFICATION	CONTRACTOR'S DRAWING AND PART NUMBER	SPARE PARTS		ALL SYMBOL DESIGNATIONS INVOLVED
									BOX NUMBER	QUANTITY	
		Jacks and Receptacles (Class 49)									
J-303	Switching Unit Power and Audio Receptacle	Receptacle, Female, 15-Pins Molded Bakelite Housing.		RE13A632B	23	S 315 SB	Shell Reversed	D5518-27	0		J-303
J-502	Antenna Relay Power Receptacle	Receptacle, Female, 12-Pins, Molded Bakelite Housing.		RE13A632B	23	S 312 AB		D5573-80	0		J-502
J-607	Main Antenna Receptacle	Receptacle, Male, Box Mounting, Single Pin, Threaded Coupling Shell with Cable Clamp.		RE13A632B	4	97-3100-10S-2PY & Clamp AN-3057-3		D5598-13	0		J-607
		Relays (Class 29)									
K-506-1	Operate Relay Coil	An integral Part of Stepping Switch—See S-506-1 to -4.									
K-506-2	Release Relay Coil	Same as K-506-1									
K-601	Antenna Switching Relay for Receiver #1	Relay, High Frequency, Single Pole Single Throw. 48 Volt D-C Coil. Contact Capacity 1 KW. Low Capacity Silver Contacts.			19	R-100		D5598-12	1F1Q	1	K-601, K-602, K-603, K-604, K-605, K-606, K-607, K-608, K-609, K-610
K-602	Antenna Switching Relay for Receiver #2	Same as K-601									
K-603	Antenna Switching Relay for Receiver #3	Same as K-601									
K-604	Antenna Switching Relay for Receiver #4	Same as K-601									
K-605	Antenna Switching Relay for Receiver #5	Same as K-601									
K-606	Antenna Switching Relay for Receiver #6	Same as K-601									

TABLE II (Cont'd)
PARTS AND SPARE PARTS LIST BY SYMBOL DESIGNATION FOR MODEL RBF-1 RADIO RECEIVING EQUIPMENT

SYMBOL DESIG.	FUNCTION	DESCRIPTION	NAVY TYPE NUMBER	NAVY SPEC. OR DRAWING NUMBER	MFR.	MFR. DESIG.	SPECIAL TOL. RATING OR MODIFICATION	CONTRACTOR'S DRAWING AND PART NUMBER	SPARE PARTS		ALL SYMBOL DESIGNATIONS INVOLVED
									BOX NUMBER	QUANTITY	
		Relays (Class 29)									
K-607	Antenna Switching Relay for Receiver #7	Same as K-601									
K-608	Antenna Switching Relay for Receiver #8	Same as K-601									
K-609	Antenna Switching Relay for Receiver #9	Same as K-601									
K-610	Antenna Switching Relay for Receiver #10	Same as K-601									
		Inductors (Class 47)									
L-101	H-F Oscillator Plate Circuit Parasitic Filter Choke	R-F Choke. Rated 15 μH ± 10% at 80 MC. D-C Resistance 2.4 Ohms. 72 Turns of #36 E.S.C. Wire Close Wound on a 0.275" Dia. Composition Form.			40	58008		D5539-117	0		L-101, L-103, L-104
L-102	H-F Oscillator Filament R-F Filter Choke	R-F Choke. Rated 4 μH ± 10% at 80 MC. D-C Resistance 0.17 Ohms. 43 Turns of #30 E.S.C. Wire Close Wound on a 0.275" Dia. Composition Form.			40	58009		D5539-118	0		L-102
L-103	First A-F Amplifier Grid Circuit I-F Choke	Same as L-101									
L-104	Plate Supply R-F Choke	Same as L-101									
L-105	Filament Supply R-F Choke	R-F Choke. Rated 0.8 μH ± 10% at 80 MC. D-C Resistance 0.05 Ohms. 22 Turns of #18 E.S.C. Wire Close Wound on 500,000 Ohm, 1 Watt, BT-1, International Resistance Corporation Resistor.			2	D5539-(1)43	Paint Removed from Resistor before Winding	D5539-43	0		L-105

TABLE II (Cont'd)

PARTS AND SPARE PARTS LIST BY SYMBOL DESIGNATION FOR MODEL RBF-1 RADIO RECEIVING EQUIPMENT

SYMBOL DESIG.	FUNCTION	DESCRIPTION	NAVY TYPE NUMBER	NAVY SPEC. OR DRAWING NUMBER	MFR.	MFR. DESIG.	SPECIAL TOL. RATING OR MODIFICATION	CONTRACTOR'S DRAWING AND PART NUMBER	SPARE PARTS		ALL SYMBOL DESIGNATIONS INVOLVED
									BOX NUMBER	QUANTITY	
		Inductors (Class 47)									
L-201	17 KC. Oscillator Coil	Nominal Inductance 17.5 mH Wound in Two Coils Series Aiding, Spaced ⅛" Apart. Coils Wound 500 Turns each with #32 S.S.E. Wire on ½" Dia. Bakelite Form. Coil #2 Tapped at 250 Turns. Permeability Tuned.			40	287-S		D5517-58	0		L-201
L-202	Low Voltage Power Supply Filter Reactor	"D-C Swinging Reactor". 2.0 H at 0.450 Amps. 6.0 H at 0.050 Amps. D-C Resistance 35 Ohms ± 6%. Wound with #24 E Wire. Breakdown—2500 Volts, 60 Cycles.		RE13A632B	11	10031		D5517-52	0		L-202, L-301, L-303
L-301	Input Filter Reactor for Plate Supply #1	Same as L-202						D5518-16			
L-302	Second Filter Reactor for Plate Supply #1	D-C Reactor. 3.5 H at 0.450 Amps. D-C Resistance 35 Ohms ± 6%. Wound with #24 E Wire. Breakdown—2500 Volts, 60 Cycles.		RE13A632B	11	10031-A		D5518-17	0		L-302, L-304
L-303	Input Filter Reactor for Plate Supply #2	Same as L-202						D5518-16			
L-304	Second Filter Reactor for Plate Supply #2	Same as L-302									
		Loud Speakers (Class 49)									
LS-201	Loud Speaker	Speaker, Six Inch Permanent Magnet Type. 6-ohm Voice Coil. Water Proof Construction.			12	Mallard M-26		D5517-70	0		LS-201
		Meters (Class 22)									
M-101	Receiver Tuning Indicator	Microammeter, Zero Center, 100-0-100 Microamperes. Rectangular Flush Phenolic Case, 3⅛" x 3". Accuracy ± 2%. Scale Length, 2.36". Internal Resistance 660 ohms.		17-I-12B	43	S-25113 Model 301	Case not as Per Navy Spec.	D5539-119	0		M-101

TABLE II (Cont'd)
PARTS AND SPARE PARTS LIST BY SYMBOL DESIGNATION FOR MODEL RBF-1 RADIO RECEIVING EQUIPMENT

SYMBOL DESIG.	FUNCTION	DESCRIPTION	NAVY TYPE NUMBER	NAVY SPEC. OR DRAWING NUMBER	MFR.	MFR. DESIG.	SPECIAL TOL. RATING OR MODIFICATION	CONTRACTOR'S DRAWING AND PART NUMBER	SPARE PARTS		ALL SYMBOL DESIGNATIONS INVOLVED
									BOX NUMBER	QUANTITY	
		Meters (Class 22)									
M-201	Audio Level Indicator	DB. Meter, Single Scale, -10 to 0 to + 6 DB. Rectangular Flush Phenolic Case, 3⅛" x 3", Accuracy ± 2%. 6 MW-500 ohms. Internal Resistance 5000-ohms.		17-I-12B	43	A-2645 Type 20, Model 301	Case not as Per Navy Spec.	D5517-50	0		M-201
		Motor Timer (Class 67)									
MT-501	Motor Timer Assembly for Automatic Scanning of Receivers	Assembly Consisting of B-501, S-506-1 to 5, etc. Motor Driven Cams Provide Timing Intervals.			2	D5527(2)		D5527.1	0		MT-501
		Dials (Class 10)									
N-101	Main Tuning Dial Assembly	Dial, Calibrated, 70-90 MC. Station Log Scale 0-23. 0.040" Lamacoid (Translucent). Numbers and Division Lines in Black. Hub and Set Screws are Nickel Plated.		RE13A632B AN-QQ-S-91	2	D5542(1)		D5542.1	0		N-101
N-102	Band Spread Dial Assembly	Dial, Station Log Scale 0-100. 0.040" Lamacoid (Translucent). Numbers and Division Lines in Black. Hub and Set Screws are Nickel Plated.		RE13A632B AN-QQ-S-91	2	D5542(1)		D5542.1	0		N-102
		Instruction Books (Class A10)									
N-701	Instruction Book	Model RBF-1 Radio Receiving Equipment Preliminary Instruction Book.		RE13A573C XA-8810A	2				IF10	2††	N-701
N-702	Parts and Spare Parts List	Model RBF-1 Radio Receiving Equipment Parts and Spare Parts List by Symbol Designation, Table Two of Instruction Book N-701.		XA-8810A	2				IF9	1††	N-702
		Miscellaneous Mechanical Parts (Class 10)									
O-101	Osc. Tuning - R-F Tuning Capacitor Coupling	Flexible Coupling. 0.0625" Bakelite Insulator. Connects ¼" Shafts.		RE13A632B	31	6430-625		D5539-120	0		O-101

†† Accessories packed in Spare Parts Box.

TABLE II (Cont'd)
PARTS AND SPARE PARTS LIST BY SYMBOL DESIGNATION FOR MODEL RBF-1 RADIO RECEIVING EQUIPMENT

SYMBOL DESIG.	FUNCTION	DESCRIPTION	NAVY TYPE NUMBER	NAVY SPEC. OR DRAWING NUMBER	MFR.	MFR. DESIG.	SPECIAL TOL. RATING OR MODIFICATION	CONTRACTOR'S DRAWING AND PART NUMBER	SPARE PARTS		ALL SYMBOL DESIGNATIONS INVOLVED
									BOX NUMBER	QUANTITY	
		Miscellaneous Mechanical Parts (Class 10)									
O-102	Receiver Tuning Mechanism	Gear Reduction Drive. Ratio 46/1. ¼" Shaft Couplings. Shafts included for Mounting N-101 and N-102. Fly Wheel. Anti-backlash Gears.		RE13A632B AN-QQ-S-91	2	D5546(1) & D5539-(1)30		D5546.1 & D5539-30	0		O-102
O-501	Minor Switch Shock Mount	Bonded Rubber Shear Type Plate Shock Mounting. Load Rating—1/16" Deflection Produced by 4 lbs. Load.		RE13A632B	28	100 PH4		D5573-25	0		O-501
		Plugs (Class 49)									
P-201	A-C Line Plug (Part of W-201)	Plug, Male, 2 Pin, Rubber Covered. Standard A-C Line Connector Pins.			20	#9972		D5583-104	0		P-201
P-206	Power Source Cable Connector Plug (Part of W-201)	Plug, Female, 4 Pin, Threaded Locking Ring.	AN-92-F1	RE13A632B AN-QQ-S-91	4	AN-92-F1		D5583-105	0		P-206
P-207	Power Supply Interconnecting Cable Lug Strip (Part of W-302)	Terminal Connecting Strip, Male, 6 Spade Terminals			23	#6-4		D5583-92	0		P-207, P-302
P-302	Power Supply Interconnecting Cable Lug Strip (Part of W-302)	Same as P-207									
P-401	Audio Distribution Cable Plug (Part of W-401)	Plug, Female, 14 Conductor, Threaded Locking Ring, 90° Elbow, Soldering Washer and Cable Clamp.	AN-3108-20-1S & AN-3057-12	RE13A632B	4	AN-3108-20-1S & AN-3057-12	Silver Plated Contacts	D5583-32	0		P-401
P-403-1 to -10	Audio Cable Plug for Receivers #1 to #10 (Part of W-403-1 to -10)	Plug, Female, 2 Conductor, Threaded Locking Ring, 90° Elbow, Soldering Washer and Cable Clamp.	AN-3108-12-S-3S & AN-3057-4	RE13A632B	4	AN-3108-12-S-3S & AN-3057-4	Silver Plated Contacts	D5583-1	0		P-403-1 to -10
P-404	Main Receiver Plate and Filament Power Supply Cable Plug (Part of W-404)	Plug, Female, 5 Wire, Threaded Locking Ring, 90° Elbow, Soldering Washer and Cable Clamp.	AN-3108-22-5S & AN-3057-12	RE13A632B	4	AN-3108-25-5S & AN-3057-12	Silver Plated Contacts	D5583-20	0		P-404, P-405

TABLE II (Cont'd)
PARTS AND SPARE PARTS LIST BY SYMBOL DESIGNATION FOR MODEL RBF-1 RADIO RECEIVING EQUIPMENT

SYMBOL DESIG.	FUNCTION	DESCRIPTION	NAVY TYPE NUMBER	NAVY SPEC. OR DRAWING NUMBER	MFR.	MFG. DESIG.	SPECIAL TOL. RATING OR MODIFICATION	CONTRACTOR'S DRAWING AND PART NUMBER	SPARE PARTS		ALL SYMBOL DESIGNATIONS INVOLVED
									BOX NUMBER	QUANTITY	
		Plugs (Class 49)									
P-404-1 to -10	Power Supply Cable Plug for Receiver #1 to #10 (Part of W-404-1 to -10)	Plug, Female, 5 Wire, Threaded Locking Ring, 90° Elbow, Soldering Washer and Cable Clamp.	AN-97-3108-18-683S & AN-3057-10	RE13A632B	4		Silver Plated Contacts	D5583-15	0		P-404-1 to -10
P-405	Main Receiver Plate and Filament Power Supply Cable Plug (Part of W-405)	Same as P-404									
P-503	Switching Unit Power and Audio Plug	Plug, Male, 15 Pins, Molded Bakelite Housing.		RE13A632B	23	P-315-AB		D5573-54	0		P-503
P-602	Antenna Switching Unit Connecting Cable Plug (Part of W-602)	Plug, Male, 12 Pins, Molded Bakelite with Metal Connecting Housing and Cable Clamp.		RE13A632B	23	P-312-CCT		D5583-60	0		P-602
P-605-1 to -10	Receiver Antenna Cable Plug (Part of W-605-1 to 10)	Plug, Female, Concentric, Threaded Locking Ring and Cable Clamp. Straight Connection.	AN-3106-10S12-2SY & AN-3057-4	RE13A632B AN-QQ-S-91	4	AN-3106-10S12 2SY & AN-3057-4	Silver Plated Contacts	D5583-43	0		P-605-1 to -10, P-607
P-607	Antenna Connecting Cable Plug (Part of W-607-1)	Same as P-605-1 to -10									
P-701	Receiver Test Cable Battery Plug (Part of W-701)	Plug, Standard Service, 3 Wire, 4 Pole, 20 Amp., 125 Volts D.C.		RE13A632B	34	3730	Silver Plated Contacts	D5583-119	0		P-701
P-703	Headphone Plug	Standard Headphone Plug, 2-Conductor Type.		RE13A632B	41	No. 3 Headphone Plug	Metal Parts Nickel Plated		1F1AH	1††	P-703
P-704	Receiver Test Cable Plug, Receiver End (Part of W-701)	Plug, Female, 5 Wire, Threaded Locking Ring, Straight Connection, Soldering Washer and Cable Clamp.	AN-97-3106-18-683S & AN-3057-10	RE13A432B	4	AN-97-3106-18-683S & AN-3057-10	Silver Plated Contacts	D5583-120 D5583-121	0		P-704
		Resistors (Class 63)									
R-101	First R-F Cathode Resistor	Resistor, Composition, 220 ohms ± 10%, ½ Watt Pigtail Leads.	-63360 RC20AE 230K**	RE13A346 C75/414**	39	220-BM½		D5539-65	4B2H to 8B2H	1	R-101, R-104, R-130

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†† Accessories packed in Spare Parts Box.

TABLE II (Cont'd)
PARTS AND SPARE PARTS LIST BY SYMBOL DESIGNATION FOR MODEL RBF-1 RADIO RECEIVING EQUIPMENT

SYMBOL DESIG.	FUNCTION	DESCRIPTION	NAVY TYPE NUMBER	NAVY SPEC. OR DRAWING NUMBER	MFR.	MFG. DESIG.	SPECIAL TOL. RATING OR MODIFICATION	CONTRACTOR'S DRAWING AND PART NUMBER	SPARE PARTS		ALL SYMBOL DESIGNATIONS INVOLVED
									BOX NUMBER	QUANTITY	
		Resistors (Class 63)									
R-102	First R-F Screen Resistor	Resistor, Composition, 1000 ohms ± 10%, ½ Watt, Pigtail Leads.	-63360 RC20AE 152K**	RE13A346 C75/414**	39	1000-BM½		D5539-66	4B2H to 8B2H	1	R-102, R-103, R-105, R-107, R-109, R-114, R-117, R-119, R-122, R-139, R-144, R-211
R-103	First R-F Plate Return Resistor	Same as R-102	-63360 RC20AE 152K**								
R-104	Second R-F Cathode Resistor	Same as R-101	-63360 RC20AE 230K**								
R-105	Second R-F Screen Resistor	Same as R-102	-63360 RC20AE 152K**								
R-106	Plate Supply Isolating Resistor	Resistor, Composition, 15 K ohms ± 10%, 2 Watt, Pigtail Leads.	RC41AE 153K**		44	15000-BM2		D5539-67	4B2H to 8B2H	1	R-106
R-107	Second R-F Plate Return Resistor	Same as R-102	-63360 RC20AE 152K**								
R-108	Carrier-detector Mixer Screen Resistor	Resistor, Composition, 100 K ohms ± 10%, ½ Watt, Pigtail Leads.	-63360 RC20AE 104K**	RE13A346 C75/414**	39	100000-BM½		D5539-68	4B2I to 8B2I	1	R-108, R-110, R-120, R-123, R-127, R-135, R-136, R-203, R-210, R-212, R-219
R-109	Carrier-detector Mixer Plate-return Resistor	Same as R-102	-63360 RC20AE 152K**								
R-110	23 MC. I-F Amplifier Grid-return A-V-C Resistor	Same as R-108	-63360 RC20AE 104K**								
R-111	23 MC. I-F Amplifier Cathode Resistor	Resistor, Composition, 120 ohms ± 10%, ½ Watt, Pigtail Leads.	-63360 RC20AE 121K**	RE13A346 C75/414**	39	120-BM½		D5539-69	4B2H to 8B2H	1	R-111, R-224

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TABLE II (Cont'd)
PARTS AND SPARE PARTS LIST BY SYMBOL DESIGNATION FOR MODEL RBF-1 RADIO RECEIVING EQUIPMENT

SYMBOL DESIG.	FUNCTION	DESCRIPTION	NAVY TYPE NUMBER	NAVY SPEC. OR DRAWING NUMBER	MFR.	MFR. DESIG.	SPECIAL TOL. RATING OR MODIFICATION	CONTRACTOR'S DRAWING AND PART NUMBER	SPARE PARTS BOX NUMBER	SPARE PARTS QUANTITY	ALL SYMBOL DESIGNATIONS INVOLVED
		Resistors (Class 63)									
R-112	23 MC. I-F Amplifier Cathode Negative Feed-back Resistor	Resistor, Composition, 33 ohms ± 10%, ½ Watt Pigtail Leads.	-63360 RC20AE 330K**	RE13A346 C75/414**	39	33-BM½		D5539-70	4B2H to 8B2H	1	R-112
R-113	23 MC. I-F Amplifier Screen Resistor	Resistor, Composition, 40K ohms ± 10%, 1 Watt, Pigtail Leads.	-63288 RC30AE 393K**	RE13A346 C75/414**	39	40000-BM1		D5539-71	4B2H to 8B2H	1	R-113
R-114	23 MC. I-F Amplifier Plate-return Resistor	Same as R-102	-63360 RC20AE 152K**								
R-115	R-F Amplifier and First 16 MC. Screen Supply Resistor	Resistor, Wire Wound, 15K ohms ± 10%, 10 Watts, Style T, Grade 1, Class 1.			32	Code Brolo		D5539-72	4B2I to 8B2I 1F1R	1 1	R-115 R-221
R-116	7 MC. First Oscillator Grid-leak Resistor	Resistor, Composition, 22K ohms ± 10%, ½ Watt, Pigtail Leads.	-63360 RC20AE 223K**	RE13A346 C75/414**	39	22000-BM½		D5539-73	4B2J to 8B2J 1F1S	1 1	R-116, R-142 R-201, R-215
R-117	First 16 MC. I-F Amplifier Screen Isolating Ressitor	Same as R-102	-63360 RC20AE 152K**								
R-118	R-F Amplifier and First 16 MC. I-F Amplifier Screen Supply Bleeder Resistor	Resistor, Composition, 22K ohms ± 10%, 2 Watts, Pigtail Leads.	RC40AE 223K**	C75/414**	44	22000-BM2		D5539-74	4B2J to 8B2J	1	R-118, R-125, R-128
R-119	23-16 MC. Converter Plate-return Resistor	Same as R-102	-63360 RC20AE 152K**								
R-120	First 16 MC. I-F Amplifier Grid-return A-V-C Resistor	Same as R-108	-63360 RC20AE 104K**								
R-121	First 16 MC. I-F Amplifier Cathode Resistor	Resistor, Composition, 390 ohms ± 10%, ½ Watt, Pigtail Leads.	-63360 RC20AE 391K**	RE13A346 C75/414**	39	390-BM½		D5539-75	4B2J to 8B2J	1	R-121
R-122	First 16 MC. I-F Amplifier Plate-return Resistor	Same as R-102	-63360 RC20AE 152K**								
R-123	Second 16 MC. I-F Amplifier and Limiter Grid-return Resistor	Same as R-108	-63360 RC20AE 104K**								

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TABLE II (Cont'd)
PARTS AND SPARE PARTS LIST BY SYMBOL DESIGNATION FOR MODEL RBF-1 RADIO RECEIVING EQUIPMENT

SYMBOL DESIG.	FUNCTION	DESCRIPTION	NAVY TYPE NUMBER	NAVY SPEC. OR DRAWING NUMBER	MFR.	MFR. DESIG.	SPECIAL TOL. RATING OR MODIFICATION	CONTRACTOR'S DRAWING AND PART NUMBER	SPARE PARTS		ALL SYMBOL DESIGNATIONS INVOLVED
									BOX NUMBER	QUANTITY	
		Resistors (Class 63)									
R-124	Second 16 MC. I-F Amplifier and Limiter Grid-return A-V-C Resistor	Resistor, Composition, 2.2. Megohms ± 10%, ½ Watt, Pigtail Leads.	-63360 RC20AE 225K**	RE13A346 C75/414**	39			D5539-76	4B2J to 8B2J	1	R-124
R-125	Second 16 MC. I-F Amplifier and Limiter Plate-return Resistor	Same as R-118	RC40AE 223K**								
R-126	Second 16 MC. I-F Amplifier and Limiter Plate-return Resistor	Resistor, Composition, 4700 ohms ± 10%, ½ Watt, Pigtail Leads.	-63360 RC20AE 472K**	RE13A346 C75/414**	39	4700-BM½		D5539-77	4B2J to 8B2J	1	R-126, R-129, R-132, R-141
R-127	Third 16 MC. I-F Amplifier and Limiter Grid-return Resistor	Same as R-108	-63360 RC20AE 104K**								
R-128	Third 16 MC. I-F Amplifier and Limiter Screen Resistor	Same as R-118	RC40AE 223K**								
R-129	Third 16 MC. I-F Amplifier and Limiter Screen Resistor	Same as R-126	-63360 RC20AE 472K**								
R-130	Third 16 MC. I-F Amplifier and Limiter Plate-return Resistor (Part of T-110)	Same as R-101	-63360 RC20AE 230K**								
R-131	Tuning Meter Series Resistor	Resistor, Composition, 560K ohms ± 10%, ½ Watt, Pigtail Leads.	-63360 RC20AE 564K**	RE13A346 C75/414**	39	560000-BM½		D5539-78	4B2J to 8B2J	1	R-131
R-132	A-F Amplifier Plate-return Resistor	Same as R-126	-63360 RC20AE 472K**								
R-133	Voltage Regulation Tube Series Resistor	Resistor, Wire Wound, 2000 ohms ± 10%, 10 Watts, Style T, Grade 1, Class 1.		RE13A372J	32	Code Brolo		D5539-79	4B21 to 8B2I	1	R-133

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TABLE II (Cont'd)
PARTS AND SPARE PARTS LIST BY SYMBOL DESIGNATION FOR MODEL RBF-1 RADIO RECEIVING EQUIPMENT

SYMBOL DESIG.	FUNCTION	DESCRIPTION	NAVY TYPE NUMBER	NAVY SPEC. OR DRAWING NUMBER	MFR.	MFG. DESIG.	SPECIAL TOL. RATING OR MODIFICATION	CONTRACTOR'S DRAWING AND PART NUMBER	SPARE PARTS		ALL SYMBOL DESIGNATIONS INVOLVED
									BOX NUMBER	QUANTITY	
		Resistors (Class 63)									
R-135	Discriminator - detector Load Resistor	Same as R-108	-63360 RC20AE 104K**								
R-136	Discriminator - detector Load Resistor	Same as R-108	-63360 RC20AE 104K**								
R-137	A-F Amplifier Volumn Control Resistor	Potentiometer, 250,000 ohms, Straight Line Progression, Shaft —¼" Dia., 1⅛" Long, Flatted to 0.218". Bushing ⅜" Dia., ⅝" Long.		RE13A632B	39	Type LM Curve 1A		D5539-80	4B2K to 8B2K 1F1T	1 1	R-137 R-204
R-139	A-F Amplifier Cathode Resistor	Same as R-102	-63360 RC20AE 152K**								
R-140	H-F Oscillator Plate-return Resistor	Resistor, Composition, 10K ohms ± 10%, 1 Watt, Pigtail Leads.	-63288 RC30AE 103K**	RE13A346 C75/414**	39	10000-BM1		D5539-82	4B2L to 8B2L	1	R-140, R-501
R-141	H-F Oscillator Plate Circuit Parasitic Filter Resistor	Same as R-126	-63360 RC20AE 472K**								
R-142	H-F Oscillator Grid-leak Resistor	Same as R-116	-63360 RC20AE 223K**								
R-143	Carrier-detector Mixer Cathode Resistor	Resistor, Composition, 2200 ohms ± 10%, ½ Watt, Pigtail Leads.	-63360 RC20AE 222K**	RE13A346 C75/414**	39	2200-BM½		D5539-83	4B2L to 8B2L	1	R-143
R-144	23-16 MC. Converter Screen Resistor	Same as R-102	-63360 RC20AE 152K**								
R-145	Audio Transformer Load Resistor	Resistor, Composition, 600 ohms ± 10%, ½ Watt, Pigtail Leads.	-63360 RC20AE 621K**	RE13A346 C75/414**	39	600-BM½		D5539-81	4B2L to 8B2L	1	R-145, R-202, R-502
R-201	First A-F Amplifier Grid-return Resistor	Same as R-116	-63360 RC20AE 223K**					D5517-29			

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TABLE II (Cont'd)
PARTS AND SPARE PARTS LIST BY SYMBOL DESIGNATION FOR MODEL RBF-1 RADIO RECEIVING EQUIPMENT

SYMBOL DESIG.	FUNCTION	DESCRIPTION	NAVY TYPE NUMBER	NAVY SPEC. OR DRAWING NUMBER	MFR.	MFG. DESIG.	SPECIAL TOL. RATING OR MODIFICATION	CONTRACTOR'S DRAWING AND PART NUMBER	SPARE PARTS		ALL SYMBOL DESIGNATIONS INVOLVED
									BOX NUMBER	QUANTITY	
		Resistors (Class 63)									
R-202	First A-F Amplifier Cathode Resistor	Same as R-145	-63360 RC20AE 621K**					D5517-41			
R-203	First A-F Amplifier Plate Load Resistor	Same as R-108	-63360 RC20AE 104K**					D5517-35			
R-204	Second A-F Amplifier Volumn Control Resistor	Same as R-137						D5517-87			
R-205	First A-F Amplifier Negative Feed-back Resistor	Resistor, Composition, 1 Megohm, ± 10%, ½ Watt, Pigtail Leads.	-63360 RC20AE 105K**	RE13A346 C75/414**	38	1000000-BM½		D5517-22	1F1S	1	R-205
R-206	Second A-F Amplifier Cathode Resistor	Resistor, Composition, 250 ohms ± 10%, 1 Watt, Pigtail Leads.	-63360 RC30AE 241K**	RE13A346 C75/414**	39	250-BM1		D5517-42	1F1S	1	R-206
R-207	60-ohm Output Compensating Resistor	Resistor, Composition, 1000 ohms ± 10%, 1 Watt, Pigtail Leads.	63288 RC30AE 102K**	RE13A346 C75/414**	39	1000-BM1		D5517-44	1F1S	1	R-207
R-208	10,000-ohm Output Compensating Resistor	Resistor, Composition, 500K ohms ± 10%, ½ Watt, Pigtail Leads.	-63360 RC20AE 514K**	RE13A346 C75/414**	39	500000-BM½		D5517-26	1F1S	1	R-208, R-213
R-209	Audio Level Meter Amplifier Grid Coupling Resistor	Resistor, Composition, 470K ohms ± 10%, ½ Watt, Pigtail Leads.	-63360 RC20AE 475K**	RE13A346 C75/414**	39	470000-BM½		D5517-23	1F1U	1	R-209
R-210	Audio Level Meter Amplifier Grid-return Resistor	Same as R-108	-63360 RC20AE 104K**					D5517-35			
R-211	Audio Level Meter Amplifier Cathode Resistor	Same as R-102	-63360 RC20AE 152K**					D5517-24			
R-212	Audio Level Meter Amplifier Plate Load Resistor	Same as R-108	-63360 RC20AE 104K**					D5517-35			
R-213	Audio Level Meter High Range Series Resistor	Same as R-208	-63360 RC20AE 514K**								

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TABLE II (Cont'd)

PARTS AND SPARE PARTS LIST BY SYMBOL DESIGNATION FOR MODEL RBF-1 RADIO RECEIVING EQUIPMENT

SYMBOL DESIG.	FUNCTION	DESCRIPTION	NAVY TYPE NUMBER	NAVY SPEC. OR DRAWING NUMBER	MFR.	MFG. DESIG.	SPECIAL TOL. RATING OR MODIFICATION	CONTRACTOR'S DRAWING AND PART NUMBER	SPARE PARTS		ALL SYMBOL DESIGNATIONS INVOLVED
									BOX NUMBER	QUANTITY	
		Resistors (Class 63)									
R-214	Audio Level Meter Middle Range Series Resistor	Resistor, Composition, 120K ohms ± 10%, ½ Watt, Pigtail Leads.	-63360 RC20AE 125K**	RE13A346 C75/414**	39	120000-BM½		D5517-25	1F1U	1	R-214
R-215	17 KC. Oscillator Plate Resistor	Same as R-116	-63360 RC20AE 223K**					D5517-29			
R-216	17 KC. Oscillator Grid-leak Resistor	Resistor, Composition, 47K ohms ± 10%, ½ Watt, Pigtail Leads.	-63360 RC20AE 473K**	RE13A346 C75/414**	39	47000-BM½		D5517-34	1F1U	1	R-216
R-217	First A-F Amplifier Input Series Grid Resistor	Resistor, Composition, 10K ohms ± 10%, ½ Watt, Pigtail Leads.	-63360 RC20AE 103K**	RE13A346 C75/414**	39	10000-BM½		D5517-28	1F1U	1	R-217
R-218	First A-F Amplifier Screen Resistor	Resistor, Composition, 330K ohms ± 10%, ½ Watt, Pigtail Leads.	-63360 RC20AE 334K**	RE13A346 C75/414**	39	33000-BM½		D5517-32	1F1U	1	R-218
R-219	17 KC. Oscillator Coupling Resistor	Same as R-108	-63360 RC20AE 104K**					D5517-35			
R-220	Second A-F Output Transformer 6-ohm Winding Load Resistor	Resistor, Wire Wound, 7.5 ohms ± 10%, 10 Watts, Style T, Grade 1, Class 1.		RE13A372J	32	Code Brolo		D5517-40	1F1V	1	R-220
R-221	Low Voltage Rectifier Bleeder Resistor	Same as R-115						D5517-38			
R-222	Plate Supply #1 Voltage-dropping Resistor	Resistor, Wire Wound, 100 ohms ± 10%, 20 Watts, Style V, Grade 1, Class 1.		RE13A372J	32	#0200F		D5517-37	1F1V	1	R-222, R-223
R-223	Plate Supply #2 Voltage-dropping Resistor	Same as R-222									
R-224	First A-F Amplifier Cathode Resistor (17 KC. Oscillator Spacing)	Same as R-111	-63360 RC20AE 121K**					D5517-43			
R-301	Power Supply #1 Bleeder Resistor	Resistor, Wire Wound, 15K ohms ± 10%, 20 Watts, Style V, Grade 1, Class 1.		RE13A372J	32	#0217		D5518-25	1F1V	1	R-301, R-302
R-302	Power Supply #2 Bleeder Resistor	Same as R-301									

** American War Standards Number is to be used in ordering replacements.

TABLE II (Cont'd)
PARTS AND SPARE PARTS LIST BY SYMBOL DESIGNATION FOR MODEL RBF-1 RADIO RECEIVING EQUIPMENT

SYMBOL DESIG.	FUNCTION	DESCRIPTION	NAVY TYPE NUMBER	NAVY SPEC. OR DRAWING NUMBER	MFR.	MFR. DESIG.	SPECIAL TOL. RATING OR MODIFICATION	CONTRACTOR'S DRAWING AND PART NUMBER	SPARE PARTS		ALL SYMBOL DESIGNATIONS INVOLVED
									BOX NUMBER	QUANTITY	
		Resistors (Class 63)									
R-501	Operate Relay Charging Current Limiting Resistor	Same as R-140	-63288 RC30AE 103K**					D5573-45			
R-502	Release Relay Current Limiting Resistor	Same as R-145	-63360 RC20AE 621K**					D5573-46			
R-503	Operate Coil Capacitor Discharge Limiting Resistor	Resistor, Composition, 3300 ohms ± 10%, ½ Watt, Pigtail Leads.	-63360 RC20AE 332K**	RE13A346	38			D5573-47	1F1U	1	R-503
R-504	Receiving Panel Lamp Series Resistor	Resistor, Wire Wound, 4500 ohms ± 10%, 10 Watts, Style T, Grade 1, Class 1.		RE13A372J	32	Code Brolo		D5573-48	1F1W	1	R-504
R-505	Antenna Relay Coil Series Resistor	Resistor, Wire Wound, 2000 ohms ± 10%, 20 Watts, Style V, Grade 1, Class 1.		RE13A372J	32	Code Brohi		D5573-49	1F1W	1	R-505
		Switches (Class 24)									
S-101	Receiver B+ and Pilot Lamp Power Switch	Switch, Toggle, Double Pole, Double Throw, 1 Amp.—250 Volts, 3 Amp.—125 Volts. Wiping Contacts.	-24003	RE24AA-118A	18	CG-24003	Silver Contact Surfaces	D5539-108	4B1A to 8B1A	1	S-101
									1F1X	2	S-201, S-203, S-204, S-206
S-201	Speaker On-Off Switch	Same as S-101	-24003					D5517-85			
S-202	Meter Sensitivity Switch	Switch, Rotary Type, Single Section, Single Pole, 3-Position, Wiping Silver Contacts. Synthane Wafer. Metal Parts to Stand 200 Hour Salt Spray Test.		RE13A632B	31	24309-H1		D5517-78	1F1Y	1	S-202
S-203	17 MC Oscillator Switch	Same as S-101	-24003					D5517-85			

** American War Standards number is to be used in ordering replacements.

TABLE II (Cont'd)
PARTS AND SPARE PARTS LIST BY SYMBOL DESIGNATION FOR MODEL RBF-1 RADIO RECEIVING EQUIPMENT

SYMBOL DESIG.	FUNCTION	DESCRIPTION	NAVY TYPE NUMBER	NAVY SPEC. OR DRAWING NUMBER	MFR.	MFR. DESIG.	SPECIAL TOL. RATING OR MODIFICATION	CONTRACTOR'S DRAWING AND PART NUMBER	SPARE PARTS		ALL SYMBOL DESIGNATIONS INVOLVED
									BOX NUMBER	QUANTITY	
		Switches (Class 24)									
S-204	Power Supply Selection Switch	Same as S-101	-24003					D5517-85			
S-205	Main Power Switch (A.C. Line)	Switch, Toggle, Double Pole, Single Throw, 6 Amp.—250 Volts, 12 Amp.—125 Volts. Wiping Silver Contacts.		RE13A632B	6	#80600		D5517-77	1F1Z	1	S-205
S-206	De-emphasis In-Out Switch	Same as S-101						D5517-85			
S-501	Channel Selector Switch Section #1—Indicator Lamp Circuit Section #2—Audio Circuit	Switch, Rotary Type, 2-Section, Single Pole, 10-Position. Wiping Silver Contacts. Synthetic Wafer. Metal Parts to Withstand 200 Hour Salt Spray Test.		RE13A632B	31	23413-H2		D5573-50	1F1AA	1	S-501
S-502	Automatic-Manual Switch	Switch, Rotary Type, Single Section, Three (3) Pole—2-Position. Wiping Silver Contacts. Synthane Wafer. Metal Parts to Withstand 200 Hour Salt Spray Test.		RE13A632B	31	23454-H1		D5573-51	1F1AB	1	S-502
S-503	Channel Range Switch	Switch, Rotary Type, Single Section, Two (2) Poles—10-Position. Pole #1 Selects a Position from 1 to 10 while Pole #2 is Shorting All Other Positions. Wiping Silver Contacts. Synthane Wafer. Metal Parts to Withstand 200 Hour Salt Spray Test.		RE13A632B	31	24717-H1		D5573-52	1F1AC	1	S-503
S-504	Time Interval Switch (Selects Proper Limit Switch)	Switch, Rotary Type, Three (3) Section, Single Pole—5-Position. Section #1 Operate Voltage, Section #3—Audio. Wiping Silver Contacts. Metal Parts to Withstand 200 Hour Salt Spray Test.		RE13A632B	31	23529-H3		D5573-53	1F1AD	1	S-504

TABLE II (Cont'd)
PARTS AND SPARE PARTS LIST BY SYMBOL DESIGNATION FOR MODEL RBF-1 RADIO RECEIVING EQUIPMENT

SYMBOL DESIG.	FUNCTION	DESCRIPTION	NAVY TYPE NUMBER	NAVY SPEC. OR DRAWING NUMBER	MFR.	MFR. DESIG.	SPECIAL TOL. RATING OR MODIFICATION	CONTRACTOR'S DRAWING AND PART NUMBER	SPARE PARTS		ALL SYMBOL DESIGNATIONS INVOLVED
									BOX NUMBER	QUANTITY	
		Switches (Class 24)									
S-505 -1 to -5	Audio Muting, Operate, and Release Voltage Limit Switches	Switch, Limit, 3-Section Pile Up, 6-Spring Contacts, Operation — 3-Circuit Break. Load Limits — Break or Make, 135 Watts (Max.—3 Amps), Carry, 150 Watts (Max.—3 Amps.) Silver Contacts. Metal Parts to Withstand 200 Hour Salt Spray Test.		RE13A632B	3	3A with Roller		D5527-27	1F1AE	1	S-505-1 to -5
S-506- -1 to -4	Switch for Operating Relay Voltage, Audio and Release Circuit in Ten Steps.	Switch, Minor, Three Level, Ten Position Switch with "Break-one" Switch in #1 Position, Remote Controlled Operation. Non-Bridging Wipers. Load Limit—Break or Make, 135 Watts (Max. —3 Amps.) Carry 150 Watts (Max.—3 Amps.) Release Time —0.058 Seconds. Operate (K-506-1) and Release (K-506-2) Coil Operation 96 Volts—200 Ma. Coils Impregnated. Wiper Contacts. All Metal Parts to Pass 200 Hour Salt Spray Test.		RE13A632B	3	H-70715-1 "Off Normal" Spring 1A	Gold Contact Surfaces	D5573-56	0		S-506-1 to -4, K-506-1, K-506-2, (All these Units are combined to make one part)
		Transformers (Class 30)									
T-101	First R-F Transformer	Nominal Inductance Max. 0.80 μH, Min. 0.70 μH. 3¾ Turns of #14 Bare Tinned Wire Wound on Threaded Polystyrene Form ½" O.D. Threads—11 Per Inch, 0.032" Deep. ¼" Dia. Copper Slug for Permeability Tuning. ½ Turn Tap.		RE13A632B	40	51B479	Slug Silver Plated	D5541.1	0		T-101

TABLE II (Cont'd)
PARTS AND SPARE PARTS LIST BY SYMBOL DESIGNATION FOR MODEL RBF-1 RADIO RECEIVING EQUIPMENT

SYMBOL DESIG.	FUNCTION	DESCRIPTION	NAVY TYPE NUMBER	NAVY SPEC. OR DRAWING NUMBER	MFR.	MFR. DESIG.	SPECIAL TOL. RATING OR MODIFICATION	CONTRACTOR'S DRAWING AND PART NUMBER	SPARE PARTS		ALL SYMBOL DESIGNATIONS INVOLVED
									BOX NUMBER	QUANTITY	
		Transformers (Class 30)									
T-102	Second R-F Transformer	Inductance: Self-Pri., 1.25 μH; Sec. 0.18 μH. Mutual—0.085 μH. Primary—2⅛ Turns of #18 DBL. Cel. Tinned Wire. Secondary—7 Turns of #34 Single Cel. Enameled Wire. Both Windings Close Wound and Spaced ¼" Apart. Wound on ½" Dia. Polystyrene Coil Form. ¼" Dia. Copper Slug for Permeability Tuning.	RE13A632B		40	51B477	Slug Silver Plated	D5541.1	0		T-102, T-103
T-103	Third R-F Transformer	Same as T-102									
T-104	First 23 MC. I-F Transformer	Inductance: Self. — Pri., 0.764 μH; Sec., 0.88 μH. Mutual—0.0288 μH. Universal Type Windings. Primary—6 Turns of #28 Tinned Copper, Cel. Brd. Wire. Secondary—7 Turns of #28 Tinned Copper, Cel. Brd. Wire. Windings Spaced 19/32" Apart. Wound on ⅜" Dia. Ceramic Dowel. Encased in Aluminum Can.	RE13A632B		40	50B108		D5547.1	0		T-104
T-105	Second 23 MC. I-F Transformer	Inductance: Self—Pri., 0.935 μH; Sec., 0.906 μH. Mutual—0.0475 μH. Universal Type Windings. Primary—7 Turns of # 28 Tinned Copper, Cel. Brd. Wire. Secondary—7 Turns of #28 Tinned Copper, Cel. Brd. Wire. Windings spaced 19/32" Apart. Wound on ⅜" Dia. Ceramic Dowel. Encased in Aluminum Can.	RE13A632B		40	50B109		D5547.1	0		T-105

TABLE II (Cont'd.

PARTS AND SPARE PARTS LIST BY SYMBOL DESIGNATION FOR MODEL RBF-1 RADIO RECEIVING EQUIPMENT

SYMBOL DESIG.	FUNCTION	DESCRIPTION	NAVY TYPE NUMBER	PART SPEC OR DRAWING NUMBER	MFR	MFR. DESIG.	SPECIAL TOL. RATING OR IDENTIFICATION	CONTRACT OR ORDER NO. AND DATE	SPARE PARTS QUAN.	SPARE PARTS NOTES	ALL ASSEMBLY DESIGNATIONS USED
		Transformers (Class 10)									
T-106	T.M.C. Oscillator Transformer	Inductance: Max. 0.4 μH, Min. 0.35 μH. 2 Turns of #28 Tinned Copper Double Cotton Covered Wire Close Wound on ⅜" Dia. Bakelite Tubing. Iron Core for Permeability Tuning. Tapped at 1½ Turns Encased in Aluminum Can.						D5545.1	0		T-106
T-107	First 16 MC. I-F Transformer	Inductance: Self—Pri. 1.495 μH, Sec. 1.71 μH. Mutual—0.198 μH. Universal Type Windings. Primary—10 Turns of #28 Tinned Copper Cel. Brd. Wire. Secondary—10 Turns of #28 Tinned Copper Cel. Brd. Wire. Windings Spaced ⅜ Apart Wound on ⅜" Dia. Ceramic Dowel Encased in Aluminum Can.						D5548.1	0		T-107
T-108	Second 16 MC. I-F Transformer	Inductance: Self—Pri. 1.71 μH, Sec. 1.74 μH. Mutual—0.197 μH. Universal Type Windings. Primary—10 Turns of #28 Tinned Copper Cel. Brd., Wire. Secondary—10 Turns of #28 Tinned Copper, Cel. Brd., Wire. Windings Spaced ⅜" Apart. Wound on ⅜" Dia. Ceramic Dowel. Encased in Aluminum Can.						D5548.1	0		T-108
T-109	Third 16 MC. I-F Transformer	Inductance: Self—Pri., 1.555 μH; Sec., 1.85 μH. Mutual—0.26 μH. Universal Type Windings. Primary—10 Turns of #28 Tinned Copper, Cel. Brd., Wire. Secondary—10 Turns of #28 Tinned Copper, Cel. Brd., Wire. Windings Spaced ⅜" Apart. Wound on ⅜" Dia. Ceramic Dowel. Encased in Aluminum Can.						D5548.1	0		T-109

TABLE II (Cont'd)

PARTS AND SPARE PARTS LIST BY SYMBOL DESIGNATION FOR MODEL RBF-1 RADIO RECEIVING EQUIPMENT

SYMBOL DESIG.	FUNCTION	DESCRIPTION	NAVY TYPE NUMBER	NAVY SPEC. OR DRAWING NUMBER	MFR.	MFR. DESIG.	SPECIAL TOL. RATING OR MODIFICATION	CONTRACTOR'S DRAWING AND PART NUMBER	SPARE PARTS		ALL SYMBOL DESIGNATIONS INVOLVED
									BOX NUMBER	QUANTITY	
		Transformers (Class 30)									
T-110	16 MC. Discriminator Transformer	Inductance: Self—Pri., 1.555 μH; Sec., 2.84 μH. Mutual—0.556 μH. Universal Type Windings. Primary—10 Turns of #28 Tinned Copper, Cel. Brd., Wire. Secondary—10 Turns of #28 Tinned Copper, Cel. Brd., Wire. Secondary Center Tapped. Windings Spaced 15/32" Apart. Wound on 3/8" Dia. Ceramic Dowel. Encased in Aluminum Can.		RE13A632B	40	50B113		D5549.1	0		T-110
T-111	Receiver Audio Output Transformer	Primary: (6J5 Plate) #38 A.W.G. Enameled Wire, D-C Resistance, 600 Ohms. Inductance, Min 12H at 10 V., 60 Cycle—0.010 A. D-C. Turns Ratio, Primary to Secondary #1, 4.15 to 1, Primary to Secondary #2, 13.1 to 1. Secondary #1, 600 Ohms, #33 A.W.G. Enameled Wire, D-C Resistance 43 Ohms, ± 11%. Secondary #2, 60 Ohms, #28 A.W.G. Enameled Wire, D-C Resistance 5.28 Ohms ± 8%.		RE13A632B	11	10081		D5539-116	4B1N-8B1N	1	T-111
T-112	H-F Oscillator Transformer	Inductance: Self—Pri., 0.16 μH; Sec., 0.8 μH, Mutual—0.06 μH. Primary—2 Turns of #28 Tinned Braided Single Celenese Covered Wire Secondary—5 Turns of #12 Nivar Silver Plated Wire Wound on ½" Dia. Threaded Polystyrene coil form, Threaded 9 Threads Per Inch, Threads 0.025" Deep Mixer Coupling Winding—½ Turn of #18 Tinned Double Cel Covered Wire. Permeability Tuned.		RE13A632B	40	51B480		D5545.1	0		T-112

TABLE II (Cont'd)
PARTS AND SPARE PARTS LIST BY SYMBOL DESIGNATION FOR MODEL RBF-1 RADIO RECEIVING EQUIPMENT

SYMBOL DESIG.	FUNCTION	DESCRIPTION	NAVY TYPE NUMBER	NAVY SPEC. OR DRAWING NUMBER	MFR.	MFR. DESIG.	SPECIAL TOL. RATING OR MODIFICATION	CONTRACTOR'S DRAWING AND PART NUMBER	SPARE PARTS		ALL SYMBOL DESIGNATIONS INVOLVED
									BOX NUMBER	QUANTITY	
		Transformers (Class 30)									
T-201	Final Audio Output Transformer	Primary: 5000 Ohms (6V6 Plate) #37 A.W.G. Enameled Wire, D-C Resistance 416 Ohms, ± 15%. Inductance, 8H. at 10 V., 60 Cycles—0.045 A. D-C. Turns Ratio, Primary to Secondary #1, 9 to 1, Primary to Secondary #2, 28 to 1. Secondary #1, 60 Ohms, #28 A.W.G. Enameled Wire, D-C Resistance 6.86 Ohms, ± 8%. Secondary #2, 6 Ohms, #23 A.W.G. Enameled Wire, D-C Resistance 0.8 Ohms, ± 6%.		RE13A632B	11	10027		D5517-51	0		T-201
T-202	Filament Supply Transformer	Primary: 115 V., 60 Cycle, #17 A.W.G. Enameled Wire, D-C Resistance 0.925 Ohms, ± 6%. Secondary, 6.3 V., 30 A. Two #9 A.W.G. Square DCC Conductors Wound at Same Time.		RE13A632B	11	10028		D5517-69	0		T-202
T-203	Low Voltage Power Supply Transformer	Primary: 115 V., 60 Cycle, #20 A.W.G. Enameled Wire, D-C Resistance 2.4 Ohms, ± 6%. Secondary #1, 420 V., Center Tapped 0.40 A. D-C., #26 A.W.G. Enameled Wire. D-C Resistance 28.9 Ohms, ± 7%. Secondary #2, 5V., 6A. Two #16 A.W.G. Enameled Wires, D-C Resistance 0.111 Ohms, ± 6%.		RE13A632B	11	10030		D5517-53	0		T-203

TABLE II (Cont'd)

PARTS AND SPARE PARTS LIST BY SYMBOL DESIGNATION FOR MODEL RBF-1 RADIO RECEIVING EQUIPMENT

SYMBOL DESIG.	FUNCTION	DESCRIPTION	NAVY TYPE NUMBER	NAVY SPEC. OR DRAWING NUMBER	MFR.	MFR. DESIG.	SPECIAL TOL. RATING OR MODIFICATION	CONTRACTOR'S DRAWING AND PART NUMBER	SPARE PARTS BOX NUMBER	SPARE PARTS QUANTITY	ALL SYMBOL DESIGNATIONS INVOLVED
		Transformers (Class 30)									
T-301	High Voltage Supply #1 Power Transformer	Primary: 115 V., 60 Cycle, #16 A.W.G. Enameled Wire, D-C Resistance 0.807 Ohms, ± 6%. Secondary #1, 820 V., Center Tapped, 0.450 A., D-C, #25 A.W.G. Enameled Wire, D-C Resistance 37.48 Ohms, ± 6%. Secondary #2, 5 V., 6 A., Two #15 Enameled Wires, D-C Resistance 0.137 Ohms ± 6%.		RE13A632B	11	10029		D5518-29	0		T-301, T-302
T-302	High Voltage Supply #2 Power Transformer	Same as T-301									
		Terminal Strips (Class 10)									
TS-101	Mounting for R-101, R-102, R-103	Terminal Strip, 8-Lug, 2 x 1⅛", Two Hole Mounting, Laminated Synthane Base.		RE13A632B		D5551-(1)2		D5551-2	0		TS-101, TS-102, TS-103, TS-104, TS-105, TS-106, TS-107, TS-108, TS-109, TS-201, TS-202, TS-203, TS-401, TS-401 (-1 to -12), TS-402 (-1 & -2), TS-501, TS-502, TS-691, TS-602
TS-102	Mounting for R-104, R-105, R-107	Same as TS-101									
TS-103	Mounting for R-108, R-140	Same as TS-101									

TABLE II (Cont'd)
PARTS AND SPARE PARTS LIST BY SYMBOL DESIGNATION FOR MODEL RBF-1 RADIO RECEIVING EQUIPMENT

SYMBOL DESIG.	FUNCTION	DESCRIPTION	NAVY TYPE NUMBER	NAVY SPEC. OR DRAWING NUMBER	MFR.	MFR. DESIG.	SPECIAL TOL. RATING OR MODIFICATION	CONTRACTOR'S DRAWING AND PART NUMBER	SPARE PARTS		ALL SYMBOL DESIGNATIONS INVOLVED
									BOX NUMBER	QUANTITY	
		Terminal Strips (Class 10)									
TS-104	Mounting for R-109, R-110, R-132	Same as TS-101									
TS-105	Mounting for R-111, R-112, R-113, R-114	Same as TS-101									
TS-106	Mounting for R-117, R-119, R-120, R-144	Same as TS-101									
TS-107	Mounting for R-122, R-123, R-124	Same as TS-101									
TS-108	Mounting for R-126, R-127, R-129	Same as TS-101									
TS-109	Mounting for R-131, L-103, C-140	Same as TS-101									
TS-110	Mounting for R-106, R-115, R-118, R-125, R-128, R-133, R-139	Terminal Strip, 14-Lug, 3⅞" x 2½", Four Hole Mounting, Laminated Synthane Base.				D5551-(1)1		D5551-1	0		TS-110, TS-204
TS-111	Mounting for L-104	Terminal Strip, 2-Lug, 1¾" x ¾", Single Hole Mounting, Laminated Synthane Base.		RE13A632B		D5551-(1)4		D5551-4	0		TS-111, TS-112, TS-113, TS-114
TS-112	Mounting for L-105	Same as TS-111									
TS-113	Mounting for L-101	Same as TS-111									
TS-114	Mounting for L-102	Same as TS-111									
TS-201	Mounting for R-205, R-209, R-210, R-217	Same as TS-101									
TS-202	Mounting for R-201, R-203, R-212. R-218	Same as TS-101									
TS-203	Mounting for C-208, C-209, R-215, R-216, R-219	Same as TS-101									
TS-204	Mounting for C-202, C-213, C-214, R-207, R-208, R-220, R-221	Same as TS-110									

TABLE II (Cont'd)
PARTS AND SPARE PARTS LIST BY SYMBOL DESIGNATION FOR MODEL RBF-1 RADIO RECEIVING EQUIPMENT

SYMBOL DESIG.	FUNCTION	DESCRIPTION	NAVY TYPE NUMBER	NAVY SPEC. OR DRAWING NUMBER	MFR.	MFR. DESIG.	SPECIAL TOL. RATING OR MODIFICATION	CONTRACTOR'S DRAWING AND PART NUMBER	SPARE PARTS		ALL SYMBOL DESIGNATIONS INVOLVED
									BOX NUMBER	QUANTITY	
		Terminal Strips (Class 10)									
TS-401-1 to -12	Terminals for Power Distribution in Rack	Same as TS-101									
TS-402-1 & -2	Termination of Audio Cables to Receivers	Same as TS-101									
TS-501	Motor Power Terminals	Same as TS-101									
TS-502	Mounting for R-501, R-502, R-503	Same as TS-101									
TS-503	Mounting for R-504, R-505	Terminal Strip, 4-Lug, 3" x 1½", Two Hole Mounting, Laminated Synthane Base.		RE13A632B	2	D5551.1-3		D5551-3	0		TS-503
TS-603-1 & -2	Antenna Switching Unit Wiring Terminals	Same as TS-101									
		Miscellaneous Washers (Class 10)									
U-601	Antenna Stud Gasket	Washer, Soft Fibre, 13/32" I.D., 13/16" O.D. x 1/16" Thick.		RE13A632B	2	GKT-10		D5520-15	*	2	U-601
U-602	Antenna Insulator Upper Fibre Gasket	Waterproof Soft Fibre Washer, 2" I.D. x 2½" O.D. x 1/16" Thick.		RE13A632B	2	GKT-8		D5520-9	*	1	U-602
U-603	Antenna Insulator Lower Rubber Gasket	Gum Rubber Washer, 2" I.D. x 2½" O.D. x 1/16" Thick.		RE13A632B	2	GKT-9		D5520-10	*	1	U-603
U-604	Fibre Filler Washer for Antenna Transmission Line Lead Through Insulator	Washer, Fibre, 5/16" I.D. x ⅝" O.D. x 1/16" Thick.		RE13A632B	2	D5520.1-18		D5520-18	0		U-604
		Vacuum Tubes (Class 38)									
V-101	First R-F Amplifier	Vacuum Tube, Type 954 (Receiving-Pentode), Glass, Acorn Type. Heater: Current 0.15 Amp. at 6.3 Volts AC or DC. Plate Dissipation, 0.5 Watts Max.	-954	RE13A600E	33	CRC-954		D5539-100	4B1B to 8B1B	12	V-101, V-102, V-103

* Shipped with Type CIA-66034 Receiving Antenna.

TABLE II (Cont'd)

PARTS AND SPARE PARTS LIST BY SYMBOL DESIGNATION FOR MODEL RBF-1 RADIO RECEIVING EQUIPMENT

SYMBOL DESIG.	FUNCTION	DESCRIPTION	NAVY TYPE NUMBER	NAVY SPEC. OR DRAWING NUMBER	MFR.	MFR. DESIG.	SPECIAL TOL. RATING OR MODIFICATION	CONTRACTOR'S DRAWING AND PART NUMBER	SPARE PARTS		ALL SYMBOL DESIGNATIONS INVOLVED
									BOX NUMBER	QUANTITY	
		Vacuum Tubes (Class 38)									
V-102	Second R-F Amplifier	Same as V-101	-954								
V-103	Carrier Frequency Detector-mixer	Same as V-101	-954								
V-104	23 MC. I-F Amplifier	Vacuum Tube, Type 6AC7, (Receiving-Pentode) Single Ended Metal. Base: Small Wafer Octal 8-Pin. Heater: Current 0.45 Amp. at 6.3 Volts AC or DC. Plate Dissipation, 3.02 Watts Max.	-6AC7	RE13A600E	33	CRC-6AC-7/1852		D5539-101	4B1C to 8B1C	8	V-104, V-108
V-105	23-16 MC Converter	Vacuum Tube, Type 6SA7 (Receiving-Pentagrid) Single Ended Metal. Base: Small Wafer Octal 8-Pin. Heater: Current 0.3 Amps. at 6.3 Volts AC or DC. Plate Dissipation, 1.0 Watt Max.	-6SA7	RE13A600E	33	CRC-6SA7		D5539-102	4B1D to 8B1D	4	V-105
V-106	First 16 MC. I-F Amplifier	Vacuum Tube, Type 6SG7, (Receiving-Pentode) Single Ended Metal. Base: Small Wafer Octal 8-Pin. Heater: Current 0.3 Amps. at 6.3 Volts AC or DC. Plate Dissipation, 3 Watts Max.	-6SG7	RE13A600E	33	CRC-6SG7		D5539-103	4B1E to 8B1E	8	V-106, V-107
V-107	Second 16 MC. I-F Amplifier and Limiter	Same as V-106	-6SG7								
V-108	Third 16 MC. I-F Amplifier and Limiter	Same as V-104	-6AC7								
V-109	Discriminator-detector	Vacuum Tube, 6H6 (Receiving - Twin Diode) Single Ended Metal. Base: Small Wafer Octal 7-Pin. Heater: Current 0.3 Amps at 6.3 Volts AC or DC.	-6H6	RE13A600E	33	CRC-6H6		D5539-104	4B1F to 8B1F	4	V-109
V-110	Audio Amplifier	Vacuum Tube, 6J5 (Receiving - Triode) Single Ended Metal. Base: Small Wafer Octal 6-Pin. Heater: Current 0.3 Amps. at 6.3 Volts AC or DC. Plate Dissipation, 2.5 Watts Max.	-6J5	RE13A600E	33	CRC-6J5		D5539-105	4B1G to 8B1G	4	V-110
								D5517-57	1F2A	4	V-203, V-204

TABLE II (Cont'd)

PARTS AND SPARE PARTS LIST BY SYMBOL DESIGNATION FOR MODEL RBF-1 RADIO RECEIVING EQUIPMENT

SYMBOL DESIG.	FUNCTION	DESCRIPTION	NAVY TYPE NUMBER	NAVY SPEC. OR DRAWING NUMBER	MFR.	MFR. DESIG.	SPECIAL TOL. RATING OR MODIFICATION	CONTRACTOR'S DRAWING AND PART NUMBER	SPARE PARTS		ALL SYMBOL DESIGNATIONS INVOLVED
									BOX NUMBER	QUANTITY	
		Vacuum Tubes (Class 38)									
V-111	H-F Oscillator	Vacuum Tube, 955 (Receiving - Triode) Glass, Acorn Type. Heater: 0.15 Amp. at 6.3 Volts AC or DC. Plate Dissipation, 1.6 Watts Max.	-955	RE13A600E	33	CRC-955		D5539-106	4B1H to 8B1H	4	V-111
V-112	Voltage Regulator	Gas Tube, Type VR-150-30, (Glow Tube - Diode) Single Ended Glass. Base: Small Shell, Octal 6-Pin, Phenolic. Starting Voltage: 180 Volts Minimum. Operating Voltage: 150 Volts. Operating Current: 5 Milliamperes DC Minimum, 30 Milliamperes DC Max.	-VR-150-30	RE13A600E	33	CRC-VR-150-30		D5539-107	4B2M to 8B2M	4	V-112
V-201	Audio Amplifier	Vacuum Tube, 6SJ7, (Receiving - Pentode) Single Ended Metal. Base: Small Wafer Octal 8-Pin. Heater: Current 0.3 Amps. at 6.3 Volts AC or DC. Plate Dissipation, 2.5 Watts Max.	-6SJ7	RE13A600E	33	CRC-6SJ7		D5517-66	1F2B	2	V-201
V-202	Audio Amplifier	Vacuum Tube, 6V6GT, (Receiving - Beam Power Pentode), Glass Single Ended. Base: Intermed. Sh. Octal 7-Pin. Heater: Current 0.45 Amps. at 6.3 Volts AC or DC. Plate Dissipation, 12 Watts Max.	-6V6GT	RE13A600E	33	CRC-6V-6GT		D5517-62	1F2C	2	V-202
V-203	Meter Amplifier	Same as V-110	-6J5					D5517-57			
V-204	Oscillator	Same as V-110	-6J5					D5517-57			
V-205	Power Rectifier	Vacuum Tube, Type 5U4G (Rectifier - Diode) Single Ended Glass. Base: Medium Shell Octal 5-Pin. Heaters: 3.0 Amps. at 5.0 Volts.	-5U4G	RE13A600E	33	CRC-5U4G		D5517-63	1F2D	10	V-205, V-301, V-302, V-303, V-304
V-301	Power Rectifier	Same as V-205	-5U4G					D5518-19			

TABLE II (Cont'd)
PARTS AND SPARE PARTS LIST BY SYMBOL DESIGNATION FOR MODEL RBF-1 RADIO RECEIVING EQUIPMENT

SYMBOL DESIG.	FUNCTION	DESCRIPTION	NAVY TYPE NUMBER	NAVY SPEC. OR DRAWING NUMBER	MFR.	MFR. DESIG.	SPECIAL TOL. RATING OR MODIFICATION	CONTRACTOR'S DRAWING AND PART NUMBER	SPARE PARTS		ALL SYMBOL DESIGNATIONS INVOLVED
									BOX NUMBER	QUANTITY	
		Vacuum Tubes (Class 38)									
V-302	Power Rectifier	Same as V-205	-5U4G					D5518-19			
V-303	Power Rectifier	Same as V-205	-5U4G					D5518-19			
V-304	Power Rectifier	Same as V-205	-5U4G					D5518-19			
		Cables (Class 62)									
W-201	Power Source Cable Assembly	Cable, Two (2) #14 A.W.G. Stranded Conductors, Each Conductor Rubber Covered, then Enclosed in Rubber Jacket. 8′ 3″ Long. Terminates in P-201 and P-206.	-62095	RE13A632B	2	D5583.1C Cable W-201		D5583-106	0		W-201
W-302	Power Supply Interconnecting Cable Assembly	Cable, Seven (7) Conductor, 2—#16, 3—#22, 1—#16 (shielded), 1—#14 A.W.G., Copper Conductors, Stranded Laced Cable, 12¼″ Long, Terminates in P-207 and P-302.	-62096	RE13A632B	2	D5583.1B Cable W-302		D5583.1B	0		W-302
W-401	Audio Distribution Cable	Cable, Eleven (11) Conductor, #22 A.W.G. Copper Conductors, Stranded, Each Conductor Vinylite Covered, Cabled with Shielding, Then Plastic Covered. 11″ Long. H.V. Rectifier end equipped with P-401.		RE13A632B	2	D5583.1A Cable W-401		D5583.1A	0		W-401
W-403-1	Receiver #1 Audio Cable	Cable, Single Copper Conductor, Stranded, Shielded Rubber Covered, 7/32″ Dia. 39¾″ Long. Receiver end equipped with P-403-1.		RE13A632B	2	D5583.1A Cable W-303-1		D5583-1, 2, 12	0		W-403-1
W-403-2	Receiver #2 Audio Cable	Same as W-403-1 except 34½″ Long. Receiver end equipped with P-403-2.						D5583-1, 3, 12	0		W-403-2
W-403-3	Receiver #3 Audio Cable	Same as W-403-1 except 28″ Long. Receiver end equipped with P-403-3.						D5583-1, 4, 12	0		W-403-3
W-403-4	Receiver #4 Audio Cable	Same as W-403-1 except 23½″ Long. Receiver end equipped with P-403-4.						D5583-1, 5, 12	0		W-403-4

TABLE II (Cont'd)
PARTS AND SPARE PARTS LIST BY SYMBOL DESIGNATION FOR MODEL RBF-1 RADIO RECEIVING EQUIPMENT

SYMBOL DESIG.	FUNCTION	DESCRIPTION	NAVY TYPE NUMBER	NAVY SPEC. OR DRAWING NUMBER	MFR.	MFR. DESIG.	SPECIAL TOL. RATING OR MODIFICATION	CONTRACTOR'S DRAWING AND PART NUMBER	SPARE PARTS		ALL SYMBOL DESIGNATIONS INVOLVED
									BOX NUMBER	QUANTITY	
		Cables (Class 62)									
W-403-5	Receiver #5 Audio Cable	Same as W-403-1 except 14¾" Long. Receiver end equipped with P-403-5.						D5583-1, 6, 12	0		W-403-5
W-403-6	Receiver #6 Audio Cable	Same as W-403-1 except 18½" Long. Receiver end equipped with P-403-6.						D5583-1, 7, 12	0		W-403-6
W-403-7	Receiver #7 Audio Cable	Same as W-403-1 except 22⅞" Long. Receiver end equipped with P-403-7						D5583-1, 8, 12	0		W-403-7
W-403-8	Receiver #8 Audio Cable	Same as W-403-1 except 28½" Long. Receiver end equipped with P-403-88.						D5583-1, 9, 12	0		W-403-8
W-403-9	Receiver #9 Audio Cable	Same as W-403-1 except 34⅛" Long. Receiver end equipped with P-403-9.						D5583-1, 10, 12	0		W-403-9
W-403-10	Receiver #10 Audio Cable	Same as W-403-1 except 38⅝" Long. Receiver end equipped with P-403-10.						D5583-1, 11, 12	0		W-403-10
W-404	#1 Power Supply Cable	Cable, Six (6) Conductor, 2—#12, 2—#16, 2—#20, A.W.G., Copper Conductors, Stranded. Shield and Rubber Covered. 0.539" Dia., 12" Long. Audio Amplifier L.V. Rectifier end equipped with P-404.		RE13A632B	2	D5583.1A Cable W-404		D5583-23	0		W-404
W-404-1 to -10	Receiver #1 to #10 Power Cable	Same as W-404 except 8½" Long.						D5583-16	0		W-404-1 to -10
W-405	#2 Power Supply Cable	Same as W-404 except 8¼" Long. Audio Amplifier L.V. Rectifier end equipped with P-405.						D5583-23	0		W-405

TABLE II (Cont'd)
PARTS AND SPARE PARTS LIST BY SYMBOL DESIGNATION FOR MODEL RBF-1 RADIO RECEIVING EQUIPMENT

SYMBOL DESIG.	FUNCTION	DESCRIPTION	NAVY TYPE NUMBER	NAVY SPEC. OR DRAWING NUMBER	MFR.	MFR. DESIG.	SPECIAL TOL. RATING OR MODIFICATION	CONTRACTOR'S DRAWING AND PART NUMBER	SPARE PARTS BOX NUMBER	SPARE PARTS QUANTITY	ALL SYMBOL DESIGNATIONS INVOLVED
		Cables (Class 62)									
W-406	Power Distribution Cable	Cable, made up of Single Copper Conductor, Stranded; 7—#22 A.W.G., 8" Long; 1—#22 A.W.G., 23¼" Long; 1—#22 A.W.G., 11⅛" Long; 1—#22 A.W.G., 20⅝" Long; 8—#12 A.W.G., 8" Long; 1—#12 A.W.G., 11⅛" Long; 1—#12 A.W.G., 5⅜" Long; 1—#12 A.W.G., 18" Long.		RE13A632B	2	D5583.1B Cable W-406		D5583.1B	0		W-406
W-602	Antenna Switching Unit Connecting Cable	Same as W-401 except 15⅛" Long. Switching Unit end equipped with P-602.						D5583.1A	0		W-602
W-605-1	Receiver #1 Antenna Cable	Cable, Single Copper Conductor, Stranded, 7—#21 A.W.G., 50 Ohm Copolene Coaxial Transmission Line. Shielded and Rubber Covered. 37¼" Long—0.410" Dia. Receiver end equipped with P-605-1.		RE13A639A XA-8897A	2	D5583.1A Cable W-605-1		D5583-43, 44, 53	0		W-605-1
W-605-2	Receiver #2 Antenna Cable	Same as W-605-1 except 31¼" Long and Receiver end equipwith P-605-2.						D5583-43, 45, 53	0		W-605-2
W-605-3	Receiver #3 Antenna Cable	Same as W-605-1 except 23¼" Long and Receiver end equipwith P-605-3.						D5583-43, 46, 53	0		W-605-3
W-605-4	Receiver #4 Antenna Cable	Same as W-605-1 except 18½" Long and Receiver end equipwith P-605-4.						D5583-43, 47, 53	0		W-605-4
W-605-5	Receiver #5 Antenna Cable	Same as W-605-1 except 23¾" Long and Receiver end equipwith P-605-5.						D5583-43, 48, 53	0		W-605-5
W-605-6	Receiver #6 Antenna Cable	Same as W-605-1 except 27¼" Long and Receiver end equipwith P-605-6.						D5583-43, 49, 53	0		W-605-6

TABLE II (Cont'd)

PARTS AND SPARE PARTS LIST BY SYMBOL DESIGNATION FOR MODEL RBF-1 RADIO RECEIVING EQUIPMENT

SYMBOL DESIG.	FUNCTION	DESCRIPTION	NAVY TYPE NUMBER	NAVY SPEC. OR DRAWING NUMBER	MFR.	MFR. DESIG.	SPECIAL TOL. RATING OR MODIFICATION	CONTRACTOR'S DRAWING AND PART NUMBER	SPARE PARTS BOX NUMBER	SPARE PARTS QUANTITY	ALL SYMBOL DESIGNATIONS INVOLVED
		Cables (Class 62)									
W-605-7	Receiver #7 Antenna Cable	Same as W-605-1 except 31¼" Long and Receiver end equipped with P-605-7.						D5583-43, 45, 53	0		W-605-7
W-605-8	Receiver #8 Antenna Cable	Same as W-605-1 except 35¾" Long and Receiver end equipped with P-605-8.						D5583-43, 50, 53	0		W-605-8
W-605-9	Receiver #9 Antenna Cable	Same as W-605-1 except 42¾" Long and Receiver end equipped with P-605-9.						D5583-43, 51, 53	0		W-605-9
W-605-10	Receiver #10 Antenna Cable	Same as W-605-1 except 48¾" Long and Receiver end equipped with P-605-10.						D5583-43, 52, 53	0		W-605-10
W-607-1	Antenna Connecting Cable Assembly	Same as W-605-1 except 200 ft. long and Terminates in P-607.	-62094		2	D5583.1A Cable W-607-1		D5583-43, 53, 54	0		W-607-1
W-607-2	Relay Transmission Line Connecting Cable	Same as W-605-1 except 9⅛" Long. Antenna end equipped with J-607.						D5583-53, 110, D5598-13	0		W-607-2
W-701	Receiver Test Cable Assembly	Same as W-404 except 10 ft. long, and Terminates in P-701 and P-704.	-62099		2	D5583.1C Cable W-701		D5583-122	0		W-701
		Sockets (Class 49)									
X-101	First R-F Amplifier Tube Socket	Tube Socket, Acorn Type, Ceramic Base. 5-Pins, Silver Plated.		RE13A632B	22	Type 265		D5539-122	4B1K to 8B1K	4	X-101, X-102, X-103, X-111
X-102	Second R-F Amplifier Tube Socket	Same as X-101									
X-103	Carrier Frequency Detector-Mixer Tube Socket	Same as X-101									
X-104	23 MC. I-F Amplifier Tube Socket	Tube Socket, Octal Type, Ceramic. 8-Pins, Silver Plated. With Mounting Plate and Retainer Ring.		RE13A632B	4	#RSS8M		D5539-121	4B1L to 8B1L	8	X-104, X-105, X-106, X-107, X-108, X-109, X-110, X-112,
									1F1AG	5	X-201, X-202, X-203, X-204, X-205, X-301, X-302, X 303, X-304

TABLE II (Cont'd)
PARTS AND SPARE PARTS LIST BY SYMBOL DESIGNATION FOR MODEL RBF-1 RADIO RECEIVING EQUIPMENT

SYMBOL DESIG.	FUNCTION	DESCRIPTION	NAVY TYPE NUMBER	NAVY SPEC. OR DRAWING NUMBER	MFR.	MFR. DESIG.	SPECIAL TOL. RATING OR MODIFICATION	CONTRACTOR'S DRAWING AND PART NUMBER	SPARE PARTS		ALL SYMBOL DESIGNATIONS INVOLVED
									BOX NUMBER	QUANTITY	
		Sockets (Class 49)									
X-105	23-16 MC Converter Tube Socket	Same as X-104									
X-106	First-16 MC. I-F Amplifier Tube Socket	Same as X-104									
X-107	Second 16 MC. I-F Amplifier and Limiter Tube Socket	Same as X-104									
X-108	Third 16 MC. I-F Amplifier and Limiter Tube Socket	Same as X-104									
X-109	Discriminator-Detector Tube Socket	Same as X-104									
X-110	Audio Amplifier Tube Socket	Same as X-104									
X-111	H-F Oscillator Tube Socket	Same as X-101									
X-112	Voltage Regulator Tube Socket	Same as X-104									X-113, X-206
X-113	Indicator Lamp Socket Assembly for for I-101	Socket, with Mounting Bracket and Red Panel Jewel. Mounts in 11/16" Dia. Hole, 2" Long, Mounted.		RE13A632B	14	Type 810BF		D5539-57	0		X-114, X-115
X-114	Indicator Lamp Socket Assembly for I-102	Lamp Socket. 2 Contact. Clamp Mounting.		RE13A632B	2	D5542.1		D5542	0		
X-115	Indicator Lamp Socket Assembly for I-103	Same as X-114									X-116, X-117, X-207, X-208, X-209, X-210, X-305, X-306, X-307, X-308
X-116	Fuse Extractor Post for F-101	Extractor Post, for Cartridge Type Fuse. Through Panel Mounting. Requires ½" Dia. Hole, Molded Bakelite, 2½" Long.		RE13A632B	27	#1075		D5539-123	0		

TABLE II (Cont'd)
PARTS AND SPARE PARTS LIST BY SYMBOL DESIGNATION FOR MODEL RBF-1 RADIO RECEIVING EQUIPMENT

SYMBOL DESIG.	FUNCTION	DESCRIPTION	NAVY TYPE NUMBER	NAVY SPEC. OR DRAWING NUMBER	MFR.	MFR. DESIG.	SPECIAL TOL. RATING OR MODIFICATION	CONTRACTOR'S DRAWING AND PART NUMBER	SPARE PARTS		ALL SYMBOL DESIGNATIONS INVOLVED
									BOX NUMBER	QUANTITY	
		Sockets (Class 49)									
X-117	Fuse Extractor Post for F-102	Same as X-116									
X-201	Audio Amplifier Tube Socket	Same as X-104						D5517-75			
X-202	Audio Amplifier Tube Socket	Same as X-104						D5517-75			
X-203	Meter Amplifier Tube Socket	Same as X-104						D5517-75			
X-204	Oscillator Tube Socket	Same as X-104						D5517-75			
X-205	Power Rectifier Tube Socket	Same as X-104						D5517-75			
X-206	Main Power On-Off Indicator	Same as X-113						D5517-55			
X-207	Fuse Extractor Post for F-201	Same as X-116						D5517-82			
X-208	Fuse Extractor Post for F-202	Same as X-116						D5517-82			
X-209	Fuse Extractor Post for F-203	Same as X-116						D5517-82			
X-210	Fuse Extractor Post for F-204	Same as X-116						D5517-82			
X-301	Power Rectifier Tube Socket	Same as X-104						D5518-28			
X-302	Power Rectifier Tube Socket	Same as X-104						D5518-28			
X-303	Power Rectifier Tube Socket	Same as X-104						D5518-28			
X-304	Power Rectifier Tube Socket	Same as X-104						D5518-28			

TABLE II (Concluded)
PARTS AND SPARE PARTS LIST BY SYMBOL DESIGNATION FOR MODEL RBF-1 RADIO RECEIVING EQUIPMENT

SYMBOL DESIG.	FUNCTION	DESCRIPTION	NAVY TYPE NUMBER	NAVY SPEC. OR DRAWING NUMBER	MFR.	MFR. DESIG.	SPECIAL TOL. RATING OR MODIFICATION	CONTRACTOR'S DRAWING AND PART NUMBER	SPARE PARTS		ALL SYMBOL DESIGNATIONS INVOLVED
									BOX NUMBER	QUANTITY	
		Sockets (Class 49)									
X-305	Fuse Extractor Post for F-301	Same as X-116						D5518-21			
X-306	Fuse Extractor Post for F-302	Same as X-116						D5518-21			
X-307	Fuse Extractor Post for F-303	Same as X-116						D5518-21			
X-308	Fuse Extractor Post for F-304	Same as X-116						D5518-21			
		(Class 14)									
	R-F Preselector	R-F Preselector Unit, complete with Bottom Plate, Tuning Mechanism and Tubes. Part of CIA-46186 Radio Receiver.		RE13A632B	2	D5539.1C(1)		D5539.1C D5546.1	1F5	1	
		(Class 23)									
	Receiving Channel Switching Unit	Type CIA-23318 Switching Unit, Complete.		RE13A632B	2	D5573.1(5)		D5573.1 D5527.1	1F6	1	

TABLE III
PARTS LIST BY NAVY TYPE NUMBERS FOR MODEL RBF-1 RADIO RECEIVING EQUIPMENT

QUANTITY	NAVY TYPE NUMBER	ALL SYMBOL DESIGNATIONS INVOLVED
Miscellaneous (Class 10)		
1	-10123	
20		E-101, E-201
10		E-102
5		E-202, E-501, E-502, E-503, E-504
30		H-101
80		H-102
8		H-401
8		H-402
8		H-403
2		H-501
1		H-601
1		H-602
1		H-701
1		H-702
1		H-703
1		H-704
1		H-705
1		H-706
1		H-707
1		H-708
1		H-709
1		H-710
31		I-101, I-102, I-103, I-201
10		I-501, I-502, I-503, I-504, I-505, I-506, I-507, I-508, I-509, I-510
1		I-511
1		I-512
1		I-513
1		I-514
1		I-515
1		I-516
1		I-517
1		I-518
1		I-519
1		I-520
10		N-101
10		N-102
1		N-702
10		O-101
10		O-102
4		O-501
111		TS-101, TS-102, TS-103, TS-104, TS-105, TS-106, TS-107, TS-108, TS-109, TS-201, TS-202, TS-203, TS-401,-1 to -12, TS-402-1 & -2, TS-501, TS-502, TS-603-1 & -2
11		TS-110, TS-204
40		TS-111, TS-112, TS-113, TS-114
1		TS-503
1		U-601
1		U-602
1		U-603
1		U-604
Instruction Books (Class A10)		
2		N-701
Rectifier Power Unit (Class 20)		
1	20188	
Motors (Class 21)		
1		B-501
Instruments (Class 22)		
10		M-101
1		M-201
Switching Units (Class 23)		
1	-23318	
1	-23363	

TABLE III (Continued)
PARTS LIST BY NAVY TYPE NUMBERS FOR MODEL RBF-1 RADIO RECEIVING EQUIPMENT

QUANTITY	NAVY TYPE NUMBER	ALL SYMBOL DESIGNATIONS INVOLVED
Switches (Class 24)		
14	-24003	S-101, S-201, S-203, S-204, S-206
1		S-202
1		S-205
1		S-501
1		S-502
1		S-503
1		S-504
5		S-505-1 to -5
1		S-506-1 to -4
Fuses (Class 28)		
10		F-101
10		F-102
2		F-201, F-202
3		F-203, F-303, F-304
1		F-204
2		F-301, F-302
Relays (Class 29)		
1		K-506-1
1		K-506-2
10		K-601, K-602, K-603, K-604, K-605, K-606, K-607, K-608, K-609, K-610
Transformers (Class 30)		
10		T-101
20		T-102, T-103
10		T-104
10		T-105
10		T-106
10		T-107
10		T-108
10		T-109
10		T-110
10		T-111
10		T-112
1		T-201
1		T-202
1		T-203
2		T-301, T-302
Vacuum Tubes (Class 38)		
30	-954	V-101, V-102, V-103
20	-6AC7	V-104, V-108
10	-6SA7	V-105
20	-6SG7	V-106, V-107
10	-6H6	V-109
12	-6J5	V-110, V-203, V-204
Vacuum Tubes (Class 38)—Continued		
10	-955	V-111
10	-VR-150-30	V-112
1	-6SJ7	V-201
1	-6V6GT	V-202
5	-5U4G	V-205, V-301, V-302, V-303, V-304
Receiving Units (Class 46)		
10	-46186	
Inductors (Class 47)		
30		L-101, L-103, L-104
1		L-102
1		L-105
1		L-201
3		L-202, L-301, L-303
2		L-302, L-304
Capacitors (Class 48)		
9	-7682	C-210, C-211, C-301, C-302, C-303, C-304, C-501, C-502, C-503
1	-48197-A	C-205
33	-48288-A	C-129, C-134, C-141, C-201, C-203, C-212

TABLE III (Continued)
PARTS LIST BY NAVY TYPE NUMBERS FOR MODEL RBF-1 RADIO RECEIVING EQUIPMENT

QUANTITY	NAVY TYPE NUMBER	ALL SYMBOL DESIGNATIONS INVOLVED
Capacitors (Class 48)—Continued		
20	-48674-B20	C-130, C-133
10	48691-B20	C-136
10	-48895-B10	C-139
71	-481014-B20	C-142, C-145, C-146, C-147, C-148, C-150, C-151, C-208
10	-481024-6	C-144
253	-481037-B20	C-102, C-103, C-104, C-107, C-108, C-109, C-112, C-113, C-115, C-116, C-117, C-118, C-120, C-124, C-125, C-126, C-127, C-131, C-135, C-140, C-149, C-152, C-156, C-157, C-158, C-204, C-206, C-207
10		C-101A
20		C-101B, C-101C
10		C-101D
10		C-101E
20		C-105, C-110
30		C-106, C-111, C-143
120		C-114A, C-114B, C-119A, C-119B, C-123A, C-123B, C-128A, C-128B, C-132A, C-132B, C-137A, C-137B
10		C-121
10		C-122
10		C-138
10		C-153
20		C-154, C-155
2		C-202, C-213
2		C-209, C-214
1		C-504
Headphones, Loudspeakers, Plugs and Jacks (Class 49)		
1		HP-701
24		J-101, J-102, J-201, J-202, J-203, J-208
10		J-103
10		J-104
10		J-105
2		J-204, J-205
1		J-206
2		J-207, J-302
1		J-301
1		J-303
1		J-502
1		J-607
1		LS-201
1		P-201
1		P-206
2		P-207, P-302
1		P-401
10		P-403-1 to -10
2		P-404, P-405
10		P-404-1 to -10
1		P-503
1		P-602
11		P-605-1 to -10, P-607
1		P-701
1		P-703
1		P-704
40		X-101, X-102, X-103, X-111
89		X-104, X-105, X-106, X-107, X-108, X-109, X-110, X-112, X-201, X-202, X-203, X-204, X-205, X-301, X-302, X-303, X304
11		X-113, X-206
20		X-114, X-115
28		X-116, X-117, X-207, X-208, X-209, X-210, X-305, X-306, X-307, X308
Audio Amplifier Units (Class 50)		
1	-50117	
Insulators (Class 61)		
1		E-603
1		E-604

TABLE III (Concluded)
PARTS LIST BY NAVY TYPE NUMBERS FOR MODEL RBF-1 RADIO RECEIVING EQUIPMENT

QUANTITY	NAVY TYPE NUMBER	ALL SYMBOL DESIGNATIONS INVOLVED
Cables (Class 62)		
1	-62094	W-607-1
1	-62095	W-201
1	-62096	W-302
1	-62099	W-701 (Accessory)
1		W-401
1		W-403-1
1		W-403-2
1		W-403-3
1		W-403-4
1		W-403-5
1		W-403-6
1		W-403-7
1		W-403-8
1		W-403-9
1		W-403-10
1		W-404
10		W-404-1 to -10
1		W-405
1		W-406
1		W-602
1		W-605-1
1		W-605-2
1		W-605-3
1		W-605-4
Cables (Class 62)—Continued		
1		W-605-5
1		W-605-6
1		W-605-7
1		W-605-8
1		W-605-9
1		W-605-10
1		W-607-2
Resistors (Class 63)		
22	-63288	R-207, R-140, R-501, R-113
10	-63360	R-112
11	-63360	R-111, R-224
30	-63360	R-101, R-104, R-130
1	-63360	R-206
10	-63360	R-121
12	-63360	R-145, R-202, R-502
111	-63360	R-102, R-103, R-105, R-107, R-109, R-114, R-117, R-119, R-122, R-139, R-144, R-211
10	-63360	R-143
1	-63360	R-505
40	-63360	R-126, R-129, R-132, R-141
1	-63360	R-217
1	-63360	R-503
1	-63360	R-504
22	-63360	R-116, R-142, R-201, R-215
Resistors (Class 63)—Continued		
1	-63360	R-216
74	-63360	R-108, R-110, R-120, R-123, R-127, R-135, R-136, R-203, R-210, R-212, R-219
1	-63360	R-214
1	-63360	R-218
1	-63360	R-209
2	-63360	R-208, R-213
1	-63360	R-131
1	-63360	R-205
10	-63360	R-124
1		R-220
2		R-222, R-223
10		R-133
10		R-106
11		R-115, R-221
2		R-301, R-302
30		R-118, R-125, R-128
11		R-137, R-204
Antennas (Class 66)		
1	-66034	
1		E-601
1		E-602
Motor Timers (Class 67)		
1		MT-501

TABLE IV
LIST OF MANUFACTURERS

CODE NUMBER	MFR. PREFIX	NAME	ADDRESS
1	CAW	Aerovox Corporation	740 Belleville Avenue, New Bedford, Massachusetts
2	CIA	Airplane & Marine Instruments, Inc.	Clearfield, Pennsylvania
3		Automatic Electric Company	1033 W. Van Buren Street, Chicago, Illinois
4	CPH	American Phenolic Corporation	1830 S. 54th Avenue, Cicero, Illinois
5	CMH	American Radio Hardware Company	476 Broadway, New York, New York
6	CHH	Arrow-Hart & Hegeman Electric Company	103 Hawthorn Street, Hartford, Connecticut
7		Atlantic India Rubber Works	1453 W. Van Buren Avenue, Chicago, Illinois
8		Bodine Electric Company	2254 W. Ohio Street, Chicago, Illinois
9		Bonney Forge & Tool Works	Allentown, Pennsylvania
10	CBD	Brush Development Company	3311 Perkins Avenue, Cleveland, Ohio
11		Chicago Transformer Corporation	3501 Addison Street, Chicago, Illinois
12		Cinaudagraph Speakers, Inc.	3911-29 S. Michigan Avenue, Chicago, Illinois
13		Corning Glass Company	Corning, New York
14		Drake Manufacturing Company	1713 W. Hubbard Street, Chicago, Illinois
15	CER	Erie Resistor Corporation	Erie, Pennsylvania
16		Irwin Auger Bit. Company	134 Grant Street, Wilmington, Ohio
17	CG	General Electric Company	570 Lexington Avenue, New York, New York
18	CG	General Electric Supply Company	420-422 Duquesne Way, Pittsburgh, Pennsylvania
19		Guardian Electric Company	1621 W. Walnut Street, Chicago, Illinois
20		Hubbell Electric Company	Bridgeport, Connecticut
21	CIE	Industrial Condenser Corporation	1725 W. North Avenue, Chicago, Illinois
22	CEJ	E. F. Johnson	Waseca, Minnesota
23	CJC	Howard B. Jones	2300 Wabansia Avenue, Chicago, Illinois
24		Mathias Klein & Sons	3200 Belmont Ave., Chicago, Illinois
25		Kurz-Kasch	Dayton, Ohio
26		Lenz Electric Manufacturing Company	1751 N. Western Avenue, Chicago, Illinois

TABLE IV (Concluded)
LIST OF MANUFACTURERS

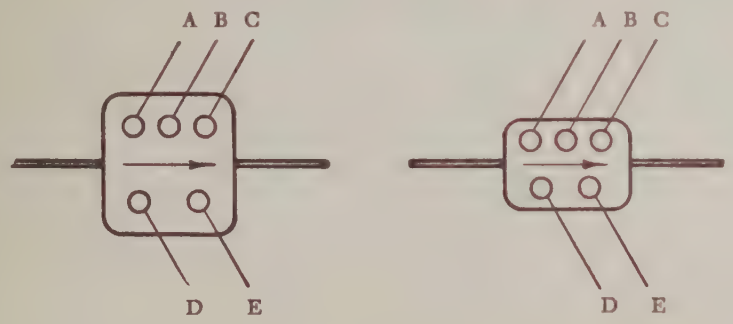
CODE NUMBER	MFR. PREFIX	NAME	ADDRESS
27	CLF	Littelfuse, Inc.	4757 Ravenswood Avenue, Chicago, Illinois
28		Lord Manufacturing Company	Erie, Pennsylvania
29		Manufacturers Screw Products	216 W. Hubbard Street, Chicago, Illinois
30	CMR	Micamold Radio Corporation	1087 Flushing Avenue, Brooklyn, New York
31	COC	Oak Manufacturing Company	1260 Claybourn Avenue, Chicago, Illinois
32	COM	Ohmite Manufacturing Company	4835 Fluornoy Street, Chicago, Illinois
23	CRC	RCA Manufacturing Company	Harrison, New Jersey
34		Russell & Stoll Company	125 Barclay Street, New York, New York
35	CFW	F. W. Sickles Company	Chicopee, Massachusetts
36		Simplex Wire & Cable Company	79 Sidney Street, Cambridge, Massachusetts
37		Snap-On Tool Corporation	7007 Kelly Street, Pittsburgh, Pennsylvania
38		Spear Resistor Company	St. Marys, Pennsylvania
39	CSA	Stackpole Carbon Company	St. Marys, Pennsylvania
40		S-W Inductor Company	1056 N. Wood Street, Chicago, Illinois
41		Utah Radio Products Company	812-20 Orleans Street, Chicago, Illinois
42		Western Electric Company	395 Hudson Street, New York, New York
43		Weston Electrical Instruments Corporation	614 Frelinghuysen Avenue, Newark, New Jersey
44	CIR	International Resistance Company	401 N. Broad Street, Philadelphia, Pennsylvania
45	CD	Cornell Dubilier Electric Corporation	333 Hamilton Blvd., South Plainfield, New Jersey

TABLE V
APPLICABLE COLOR CODES AND MISCELLANEOUS DATA FOR MODEL RBF-1 RADIO RECEIVING EQUIPMENT

5-DOT R.M.A. COLOR CODE
FOR MICA CAPACITORS IN MICROMICROFARADS

COLOR	A 1ST DIGIT	B 2ND DIGIT	C MULTIPLIER	D VOLTS
Black	0	0	1	
Brown	1	1	10	100
Red	2	2	100	200
Orange	3	3	1,000	300
Yellow	4	4	10,000	400
Green	5	5	100,000	500
Blue	6	6	1,000,000	600
Violet	7	7	10,000,000	700
Grey	8	8	100,000,000	800
White	9	9	1,000,000,000	900
Gold			.1	1000
Silver			.01	

NOTE: D no color indicates 500 Volts



E

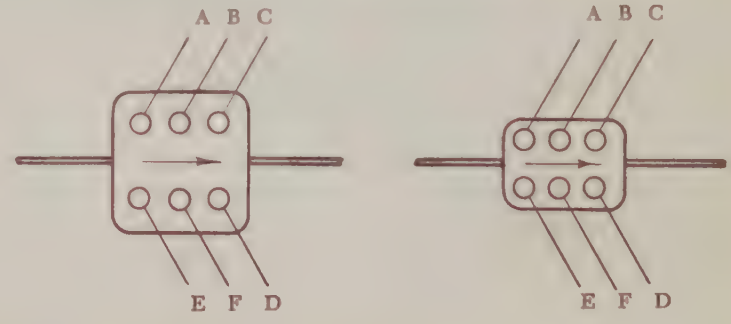
TOLERANCE

5%.....Green
10%.....Silver
20%.....No Color

6-DOT R.M.A. COLOR CODE
FOR MICA CAPACITORS IN MICROMICROFARADS

COLOR	A 1ST DIGIT	B 2ND DIGIT	C 3RD DIGIT	D MULTIPLIER	E VOLTS
Black	0	0	0	1	
Brown	1	1	1	10	100
Red	2	2	2	100	200
Orange	3	3	3	1,000	300
Yellow	4	4	4	10,000	400
Green	5	5	5	100,000	500
Blue	6	6	6	1,000,000	600
Violet	7	7	7	10,000,000	700
Gray	8	8	8	100,000,000	800
White	9	9	9	1,000,000,000	900
Gold				.1	1000
Silver				.01	

NOTE: E no color indicates 500 Volts



F

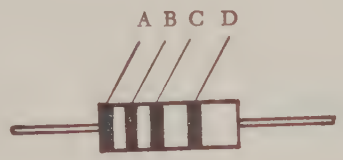
TOLERANCE

5%.....Green
10%.....Silver
20%.....No Color

TABLE V (Concluded)
APPLICABLE COLOR CODES AND MISCELLANEOUS DATA

R.M.A. COLOR CODE FOR RESISTORS

COLOR	A 1ST DIGIT	B 2ND DIGIT	C CIPHERS
Black	0	0	.0
Brown	1	1	0
Red	2	2	00
Orange	3	3	000
Yellow	4	4	0000
Green	5	5	00000
Blue	6	6	000000
Purple	7	7	0000000
Gray	8	8	00000000
White	9	9	000000000



D - Tolerance Code
Gold = 5% Silver = 10%
Omit = 20%

Wiring Color Code

Color of Wire:	Circuit used in:
White	Filaments (A+)
Black Tracer	Grounds and Grid Returns
Red Tracer	B+
Yellow Tracer	Cathodes
Blue Tracer	Plate Leads
Green Tracer	Grid Leads and Main Filament Supply
Orange Tracer	A. V. C.
Brown Tracer	Screen Leads

TABLE VI
D-C VOLTAGE AND RESISTANCE BETWEEN TUBE SOCKET TERMINALS AND GROUND

A - Measured with D-C voltmeter of 1000 ohms per volt sensitivity
B - Measured with D-C voltmeter of 5000 ohms per volt sensitivity
C - Measured with electronic D-C voltmeter
R - Resistance to ground measured with ohmmeter (with unit disconnected from all other units)

TYPE CIA-46186 RADIO RECEIVER

Socket Terminal	X-101				X-102				X-103				X-111			
	A Volts	B Volts	C Volts	R Ohms	A Volts	B Volts	C Volts	R Ohms	A Volts	B Volts	C Volts	R Ohms	A Volts	B Volts	C Volts	R Ohms
1	*	*	*	0.4	*	*	*	0.4	0	0	0	0	0	0	0	0
2	100	115	115	20,000	100	106	113	20,000	78	85	94	160,000	70	101	102	50,000
3	1.45	1.45	1.45	230	1.4	1.4	1.4	230	0	0	0	0	-5	-5	-5	24,000
4	0	0	0	0	0	0	0	0	*	*	*	0.4	*	*	*	0.4
5	1.45	1.45	1.45	230	1.4	1.4	1.4	230	4.0	4.3	4.4	2200	0	0	0	0
Top Cap	140	150	150	48,000	140	150	150	48,000	152	155	155	36,000				
Bottom Cap	0	0	0	0	0	0	0	0	0	0	0	0				

Socket Terminal	X-104				X-105				X-106				X-107			
	A Volts	B Volts	C Volts	R Ohms	A Volts	B Volts	C Volts	R Ohms	A Volts	B Volts	C Volts	R Ohms	A Volts	B Volts	C Volts	R Ohms
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	240	258	260	34,000	2.2	2.3	2.3	400	0	0	0	0
4	0	0	-0.05	2.3 Meg.	140	148	150	36,000	0	0	-0.4	2.3 Meg.	0	0	-0.45	120,000
5	2.2	2.2	2.2	160	0	0	-3.5	23,000	2.2	2.3	2.3	400	0	0	0	0
6	142	152	158	75,000	0	0	0	0	100	106	110	20,000	73	75	75	59,000
7	*	*	*	0.4	*	*	*	0.4	*	*	*	0.4	*	*	*	0.4
8	240	255	260	34,000	0	0	0	0	250	264	265	34,000	75	77	80	59,000

Socket Terminal	X-108				X-109				X-110				X-112			
	A Volts	B Volts	C Volts	R Ohms	A Volts	B Volts	C Volts	R Ohms	A Volts	B Volts	C Volts	R Ohms	A Volts	B Volts	C Volts	R Ohms
1	0	0	0	0	0	0	0	0	0	0	0	0				
2	0	0	0	0	*	*	*	0.4	*	*	*	0.4	0	0	0	0
3	0	0	0	0	-18	-19	-21	100,000	215	224	225	39,000	155	161	162	35,000
4	0	0	-2.75	110,000	Vari-	Vari-	Vari-	165,000								
	0	0	0	0	able	able	able									
5	100	101	103	59,000	-1.0	-28	-28	100,000	0	0	0	260,000	155	161	162	35,000
6	*	*	*	0.4	-6.8	-19.5	-20	100,000								
7	90	99	100	59,000	0	0	0	0					155	161	162	35,000
8					0	0	0	0	6.5	6.8	7	1,000				

* Heater voltage 6.3 volts, measured with A-C voltmeter when 110 volt A-C power supply is used, and with D-C voltmeter when D-C power supply is used.

TABLE VI (Concluded)
D-C VOLTAGE AND RESISTANCE BETWEEN TUBE SOCKET TERMINALS AND GROUND

A - Measured with D-C voltmeter of 1000 ohms per volt sensitivity
B - Measured with D-C voltmeter of 5000 ohms per volt sensitivity
C - Measured with electronic D-C voltmeter
R - Resistance to ground measured with ohmmeter (with unit disconnected from all other units)

TYPE CIA-50117 AUDIO-AMPLIFIER AND L-V RECTIFIER UNIT

Socket Terminal	X-201				X-202				X-203				X-204				X-205			
	A Volts	B Volts	C Volts	R Ohms	A Volts	B Volts	C Volts	R Ohms	A Volts	B Volts	C Volts	R Ohms	A Volts	B Volts	C Volts	R Ohms	A Volts	B Volts	C Volts	R Ohms
1	0	0	0	0					0	0	0	0	0	0	0	0	0	0	0	0
2	*	*	*	0.01	*	*	*	0.01	*	*	*	0.01	*	*	*	0.01	0	0	0	0
3	0	0	0	130	245	260	270		72	83	84	Infinity	103	115	115					
4	0	0	0	21,000	250	270	283										-245	-260	-260	14,000
5	0	0	0	130	0	0	-6	220,000	0	0	-0.4	85,000	0	0	-3.8	51,000				
6	55	63	67	Infinity													-245	-260	-260	14,000
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
8	60	67	72		11.7	13.0	13.5	250	2.2	2.38	2.4	1,000	0	0	0	10	**	**	**	0.01

TYPE CIA-20188 H-V RECTIFIER UNIT

Socket Terminal	X-301			X-302			X-303			X-304		
	A No Load	A 5 Receiver Load	R	A No Load	A 5 Receiver Load	R	A No Load	A 5 Receiver Load	R	A No Load	A 5 Receiver Load	R
1												
2	407	295	15,000	407	295	15,000	407	295	15,000	407	295	15,000
3												
4	400 AC#	380 AC#	20	400 AC#	380 AC#	20	400 AC#	380 AC#	20	400 AC#	380 AC#	20
5												
6	400 AC#	380 AC#	20	400 AC#	380 AC#	20	400 AC#	380 AC#	20	400 AC#	380 AC#	20
7												
8	407	295	15,000	407	295	15,000	407	295	15,000	407	295	15,000

* Heater voltage 6.3 volts A-C, measured with A-C voltmeter.
** Heater voltage 5.0 volts A-C, measured with A-C voltmeter.

Measured with A-C voltmeter.

TYPE JAN-954

954

DETECTOR AMPLIFIER PENTODE

ACORN TYPE

Especially for wavelengths as short as 0.7 meter

Heater	Coated Unipotential Cathode	
Voltage[oo]	6.3	a-c or d-c volts
Current	0.15	amp.
Direct Interelectrode Capacitances:		
Grid to Plate (with shield baffle)	0.007 max.	μμf
Input	3.0	μμf
Output	3.8	μμf
Overall Length	1-11/16" ± 3/16"	
Overall Diameter (Including terminals)	1-3/32" ↑ 1/16"	
Bulb	T-6-1/2	
RCA Socket	Stock No.9025	
RCA Grid & Plate Clips	Stock No.9039	
Mounting Position	Any	

Maximum and Minimum Ratings Are Design-Center Values

AMPLIFIER

D-C Plate Voltage	250 max.	volts
D-C Screen (Grid No.2) Voltage	[illegible] max.	volts
D-C Grid (No.1) Voltage	-3 min.	volts
Plate Dissipation	0.5 max.	watt
Screen Dissipation	[illegible] max.	watt

Typical Operation and Characteristics - Class A_1 Amplifier:

D-C Plate Voltage	90	250	volts
Suppressor	Connected to cathode at socket		
D-C Screen Voltage	90	100	volts
D-C Grid Voltage	-3	-3	volts
Plate Resistance	1.0	Greater than 1.0	megohm
Transconductance	1100	1400	μmhos
D-C Plate Current	1.2	2.0	ma.
D-C Screen Current	0.5	[illegible]	ma.

Typical Operation - Resistance-Coupled Amplifier:

Plate-Supply Voltage[o]	[illegible]	volts
Suppressor	Connected to cathode at socket	
D-C Screen Voltage	50	volts
D-C Grid Voltage[*]	-2.1	volts
Load Resistance	0.25	megohm
D-C Plate Current	0.5	ma.
Voltage Output (5% second harmonic)	40 to 50 RMS	volts
Voltage Amplification	100 approx.	

[*] The d-c resistance in the grid circuit should not exceed 1.0 megohm.

DETECTOR

D-C Plate Voltage	250 max.	volts
D-C Screen (Grid No.2) Voltage	100 max.	volts

Typical Operation - Biased Detector:

Plate-Supply Voltage[o]	250	volts
Suppressor	Connected to cathode at socket	
D-C Screen Voltage	100	volts
D-C Grid (No.1) Voltage	-6 approx.	volts
Load Resistance	0.25	megohm
D-C Plate Current	Adjusted to 0.1 ma. with no input signal	
Cathode Resistor	20000 to 50000	ohms

◄ Indicates a change.

Dec. 1, 1942 — RCA RADIOTRON DIVISION, RCA MANUFACTURING COMPANY INC — DATA

TYPE JAN-954

954

AVERAGE PLATE CHARACTERISTICS

PENTODE CONNECTION

MAR.11.1935 — RCA RADIOTRON DIVISION, RCA MANUFACTURING COMPANY INC — 92C-4378

"TYPICAL VACUUM TUBE CHARACTERISTICS"

TYPE JAN-6AC7/1852

6AC7

6AC7/1852

TELEVISION AMPLIFIER PENTODE

SINGLE-ENDED METAL TYPE

Heater★	Coated Unipotential Cathode	a-c or d-c volts
Voltage	6.3	
Current	0.45	amp.
Direct Interelectrode Capacitances:°		
Grid to Plate	0.015 max.	μμf
Input	11	μμf
Output	4	μμf
Maximum Overall Length		2-5/8"
Maximum Seated Height		2-1/16"
Maximum Diameter		1-5/16"
Bulb		Metal Shell, MT-8
Base		Small Wafer Octal 8-Pin
Pin 1 - Shell		Pin 5 - Cathode
Pin 2 - Heater		Pin 6 - Screen
Pin 3 - Suppressor		Pin 7 - Heater
Pin 4 - Grid		Pin 8 - Plate
Mounting Position	BOTTOM VIEW (8N)	Any

AMPLIFIER

Plate Voltage	300 max.	volts
Screen Voltage	150 max.	volts
Screen-Supply Voltage	300 max.	volts
Plate Dissipation	3.02 max.	watts ←
Screen Dissipation	0.38 max.	watt

Typical Operation and Characteristics - Class A_1 Amplifier:

	Condition I*	Condition II**	
Plate Voltage	300	300	volts
Suppressor□	0	0	volts
Screen-Supply #	150	300	volts
Screen Series Resistor	-	60000	ohms
Cathode-Bias Resistor ##	160	160	min. ohms
Plate Res.	1.0	1.0	approx. megohm ←
Transcond.	9000	9000	μmhos
Plate Cur.	10	10	ma.
Screen Cur.	2.5	2.5	ma.

° With shell connected to cathode.

Screen-supply voltages in excess of 150 volts require the use of a series-dropping resistor to limit the voltage at the screen to 150 volts when the plate current is at its normal value of 10 milliamperes.

* Condition I with fixed screen supply gives a sharp cut-off characteristic.

** Condition II with series screen resistor gives an extended cut-off characteristic for applications where gain is controlled by variation of grid bias.

Cathode-bias resistor should be adjusted to give a plate current of 10 ma. The d-c resistance in the grid circuit should not exceed 0.25 megohm when the screen voltage is obtained from a fixed source. When a series screen resistor is used with full cathode bias, the d-c resistance in the grid circuit may be as high as 0.5 megohm.

★ The potential difference between heater and cathode should be kept as low as possible.

□ The suppressor should be connected in r-f and i-f stages directly to ground to minimize feedback.

NOTE: It is characteristic of a high gm tube to show appreciable changes of input capacitance and input conductance with plate current, in high-frequency circuits, it will be necessary to take precautions to minimize this effect. The use of the 6AC7 as a high-gain audio amplifier is not recommended unless the heater is operated from a battery source.

←Indicates a change.

Dec. 1, 1941 DATA

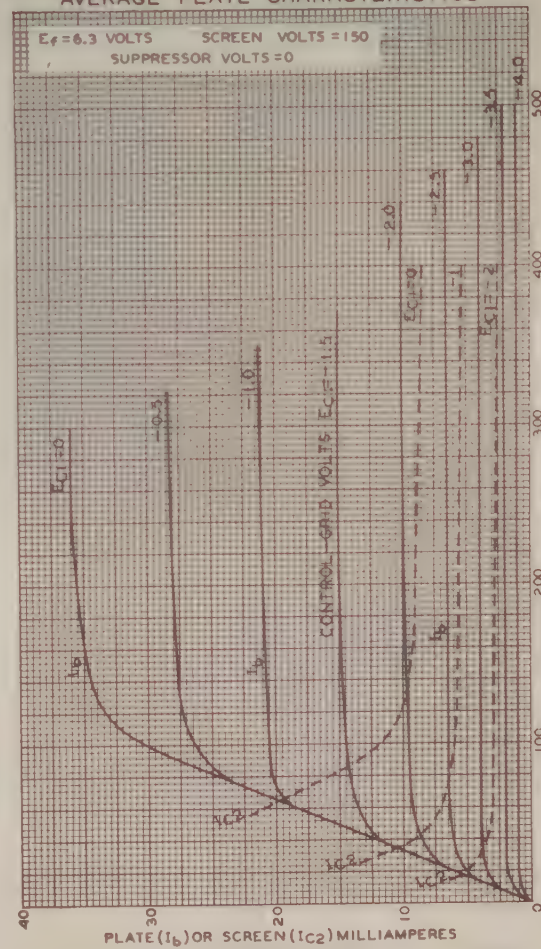
RCA RADIOTRON DIVISION
RCA MANUFACTURING COMPANY, INC.

6AC7

TYPE JAN-6AC7

6AC7

AVERAGE PLATE CHARACTERISTICS



JUNE 17, 1938

RCA RADIOTRON DIVISION
RCA MANUFACTURING COMPANY, INC.

92C-6139

TYPE JAN-6SA7, 6SA7-GT/G

6SA7
6SA7-GT/G

6SA7, 6SA7-GT/G

PENTAGRID CONVERTER

Heater ■	Coated Unipotential Cathode	
Voltage	6.3	a-c or d-c volts
Current	0.3	amp.

Direct Interelectrode Capacitances:	6SA7	6SA7-GT/G	←
Grid #3 to All Other Electrodes (R-F Input)	9.5▲	11▲▲	μμf
Plate to All Other Electrodes (Mixer Output)	12▲	11▲▲	μμf
Grid #1 to All Other Electrodes (Osc. Input)	7▲	8▲▲	μμf
Grid #3 to Plate	0.13 max.▲	0.5 max.▲▲	μμf
Grid #3 to Grid #1	0.15 max.▲	0.4 max.▲▲	μμf
Grid #1 to Plate	0.06 max.▲	0.2 max.▲▲	μμf
Grid #1 to Shell, Grid #5, and All Other Electrodes except Cathode	4.4	–	μμf
Grid #1 to All Other Electrodes except Cathode & Grid #5	–	5	μμf
Grid #1 to Cathode	2.6	–	μμf
Grid #1 to Cathode & Grid #5	–	3	μμf
Cathode to Shell, Grid #5, and All Other Electrodes except Grid #1	5	–	μμf
Cathode and Grid #5 to All Other Electrodes except Grid #1	–	14	μμf
Maximum Overall Length	2-5/8"	3-5/16"	
Maximum Seated Height	2-1/16"	2-3/4"	
Maximum Diameter	1-5/16"	1-5/16"	
Bulb	Metal Shell MT-8	T-9	
Base	Small Wafer Octal 8-Pin	Intermed. Sh. Octal 8-Pin	

Pin 1 { 6SA7, Shell, Grid #5 / 6SA7-GT/G, No Conn.
Pin 2 – Heater
Pin 3 – Plate
Pin 4 – Grids #2 & #4
Pin 5 – Grid #1
Pin 6 { 6SA7, Cathode / 6SA7-GT/G, Cathode & Grid #5
Pin 7 – Heater
Pin 8 – Grid #3

BOTTOM VIEW (8R)

BOTTOM VIEW (G-8AD)

Mounting Position: Any

Maximum And Minimum Ratings Are Design-Center Values

CONVERTER SERVICE

Plate Voltage	300 max. volts
Grids #2 & #4 Voltage	100 max. volts
Grids #2 & #4 Supply Voltage	300 max. volts
Grid #3 Voltage *	0 min. volts
Plate Dissipation	1.0 max. watt
Screen Dissipation	1.0 max. watt
Total Cathode Current	14 max. ma.

■ In circuits where the cathode is not directly connected to the heater, the potential difference between heater and cathode should be kept as low as possible.
▲ With shell connected to cathode.
▲▲ With external shield connected to cathode.
* For self-excited oscillator.
← Indicates a change.

Jan. 1, 1943 — DATA

RCA VICTOR DIVISION
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

6SA7
6SA7-GT/G

TYPE JAN-6SA7, 6SA7-GT/G

6SA7, 6SA7-GT/G

PENTAGRID CONVERTER

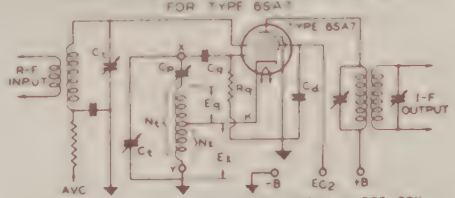
(continued from preceding page)

Characteristics:	Test Conditions*		Service Conditions		
Plate Voltage	[illegible]	[illegible]	[illegible]	[illegible]	volts
Grids #2 & #4 Volt.	[illegible]	[illegible]	[illegible]	[illegible]	volts
Grid #3 (Control) Volt.	0	0	-2	-2	volts
Grid #1 Resistor	20000	20000	20000	20000	ohms
Plate Res. (Approx.)	0.5	1.0	0.5	1.0	megohm
Conversion Transcond.	425	450	425	450	μmhos
Conversion Transcond. (Approx.) ‡	2	2	2	2	μmhos
Plate Current	3.3	3.5	3.3	3.5	ma.
Grids #2 & #4 Current	8.5	8.5	8.5	8.5	ma.
Grid #1 Current	0.5	0.5	0.5	0.5	ma.
Total Cathode Current	12.3	12.5	12.3	12.5	ma.

NOTE: The transconductance between Grid #1 and Grids #2 & #4 connected to plate (not oscillating) is approximately 4500 μmhos under the following conditions: Grids #1 [illegible] Grids #2 & #4 and plate at 100 volts.

* Characteristics are approximate only and are shown for a Hartley circuit with a feedback of approximately 7 volts peak in the cathode circuit.
‡ With Grid #1 bias of -38 volts.

TYPICAL SELF-EXCITED CONVERTER CIRCUIT FOR TYPE 6SA7



C_d = BY-PASS COND.
C_g = 50 μμf
C_p = PADDING COND.
C_t = TUNING COND.
N_t = TOTAL TURNS IN OSC. COIL
N_k = TURNS IN CATHODE SECTION OF OSC. COIL
R_g = 20000 OHMS

CE-8992

The license extended to the purchaser of tubes appears in the License Notice accompanying them. Information contained herein is furnished without assuming any obligations.

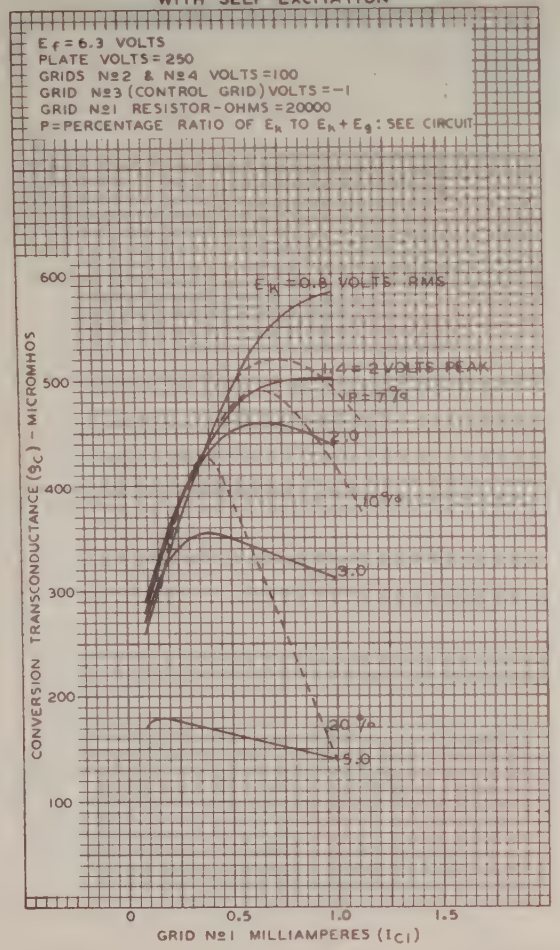
Jan. 1, 1943 — DATA

RCA VICTOR DIVISION
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

TYPE JAN-6SA7

6SA7

OPERATION CHARACTERISTICS
WITH SELF-EXCITATION



NOV. 2, 1938 — RCA RADIOTRON DIVISION, RCA MANUFACTURING COMPANY, INC. — 92C-4993

TYPE JAN-6SG7

6SG7

H-F AMPLIFIER PENTODE

SINGLE-ENDED METAL SHELL R-F PENTODE CUT-OFF

Heater	Seated Unipotential Cathode	
Voltage	6.3	a-c or d-c volts
Current	0.3	amp.
Direct Interelectrode Capacitances:		
Grid to Plate	0.003 max.	μμf
Input	8.5	μμf
Output	7.0	μμf
Maximum Overall Length		2-5/8"
Maximum Seated Height		2-1/16"
Maximum Diameter		1-5/16"
Bulb		Metal Shell, MT-8
Base		Small Wafer Octal, 8-Pin
Pin 1 - Shell		Pin 5 - Cathode
Pin 2 - Heater		Pin 6 - Screen
Pin 3 - Cathode		Pin 7 - Heater
Pin 4 - Grid		Pin 8 - Plate
Mounting Position		Any

BOTTOM VIEW (8BK)

Maximum And Minimum Ratings Are Design-Center Values

AMPLIFIER

Plate Voltage			[illegible] max.	volts
Screen Voltage			200 max.	volts
Screen Supply Voltage			[illegible] max.	volts
Grid Voltage			0 min.	volts
Plate Dissipation			3 max.	watts
Screen Dissipation			0.6 max.	watt
Typical Operation and Characteristics Class A Amplifier				
Plate Voltage	100	125	150	volts
Screen Voltage	100	125	150	volts
Grid Voltage	-1	-1	-2.5	volts
Suppressor	Connected to pin #3 internally			
Plate Resistance (Approx.)	0.25	0.9	6	megohm
Transconductance	4100	4700	4000	μmhos
Grid Bias*	-11.5	-14	-17.5	volts
Plate Current	8.2	11.8	9.2	ma.
Screen Current	3.2	4.4	3.4	ma.

* In circuits where the cathode is not directly connected to the heater, the potential difference between heater and cathode should be kept as low as possible.
# Greater than 1 megohm.
° Approximate, for transconductance of 80 micromhos.
◇ With shell connected to cathode.

→ Indicates a change.

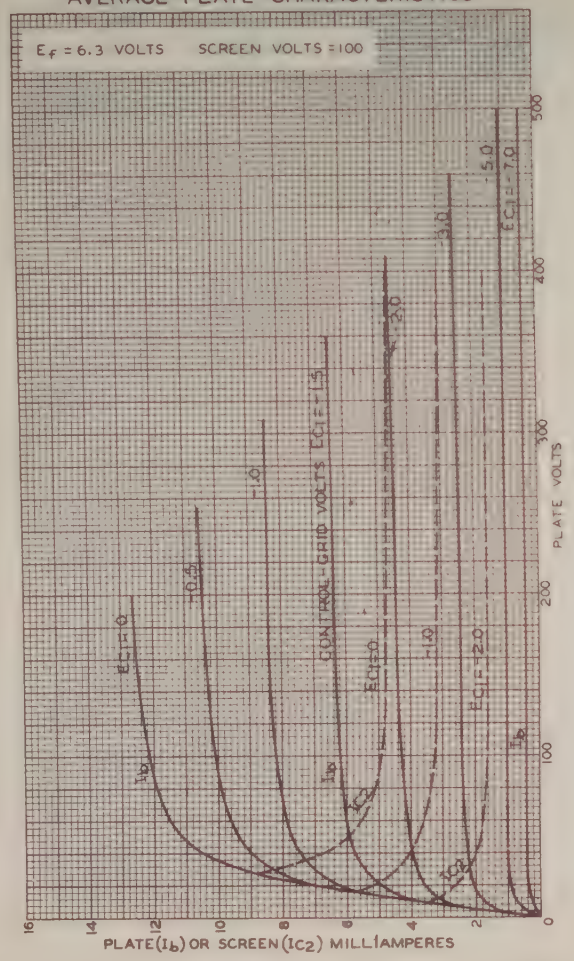
May 1, 1942 — RCA RADIOTRON DIVISION, RCA MANUFACTURING COMPANY, INC. — TENTATIVE DATA

6SG7

TYPE JAN-6SG7

6SG7

AVERAGE PLATE CHARACTERISTICS



APRIL 16, 1942 RCA RADIOTRON DIVISION RCA MANUFACTURING COMPANY INC. 92C-8253R2

6H6 6H6-GT/G

TYPE JAN-6H6, 6H6-GT/G

6H6, 6H6-GT/G

TWIN DIODE

Heater	Coated Unipotential Cathodes		
Voltage	6.3		a-c or d-c volts
Current	0.3		amp.
	6H6	6H6-GT/G	
Direct Interelectrode Cap.°			
Plate #1 to Cathode #1	3.0	3.0	μμf
Plate #2 to Cathode #2	3.4	4.0	μμf
Plate #1 to Plate #2	0.10 max.	0.10 max.	μμf
Maximum Overall Length	1-3/4"	3-5/16"	
Maximum Seated Height	1-3/16"	2-3/4"	
Maximum Diameter	1-5/16"	1-5/16"	
Bulb	Metal Shell MT-8	T-9	
Base	Small Wafer / Octal 7-Pin	Intermed. Shell / Octal 7-Pin	
Basing Designation	7Q	G-7Q	
Pin 1	6H6, Shell / 6H6-GT/G, Internal Shield		
Pin 2 - Heater			
Pin 3 - Plate #2			
Pin 4 - Cathode #2			
Pin 5 - Plate #1			
Pin 7 - Heater			
Pin 8 - Cathode #1			
RCA Socket		Stock No. 9924	→
Mounting Position		Any	

BOTTOM VIEW

Maximum Ratings Are Design-Center Values

RECTIFIER OR DOUBLER

Peak Inverse Voltage		420 max.	volts →
Peak Plate Current per Plate		48 max.	ma. →
D-C Heater-Cathode Potential		330 max.	volts →
*As Half-Wave Rectifier:**			→
A-C Plate Voltage per Plate (RMS)	117	150 max.	volts
Total Effect. Plate-Supply Impedance per Plate▲	15 min.	40 min.	ohms
D-C Output Current per Plate	8 max.	8 max.	ma.
As Voltage Doubler:	Half-Wave	Full-Wave	→
A-C Plate Voltage per Plate (RMS)	117	117	volts
Total Effect. Plate-Supply Impedance per Plate▲	30 min.	15 min.	ohms
D-C Output Current	8 max.	8 max.	ma.

° With shell or external and internal shields connected to cathodes.
* In half-wave service, the two units may be used separately or in parallel.
▲ When a filter-input condenser larger than 80 μf is used, it may be necessary to use more plate-supply impedance than the minimum value shown to limit the peak plate current to the rated value.

Circuits for the 6H6 and 6H6-GT/G are the same as those shown under Type 25Z5.

→ Indicates a change.

AUG. 1, 1942 RCA RADIOTRON DIVISION RCA MANUFACTURING COMPANY INC DATA

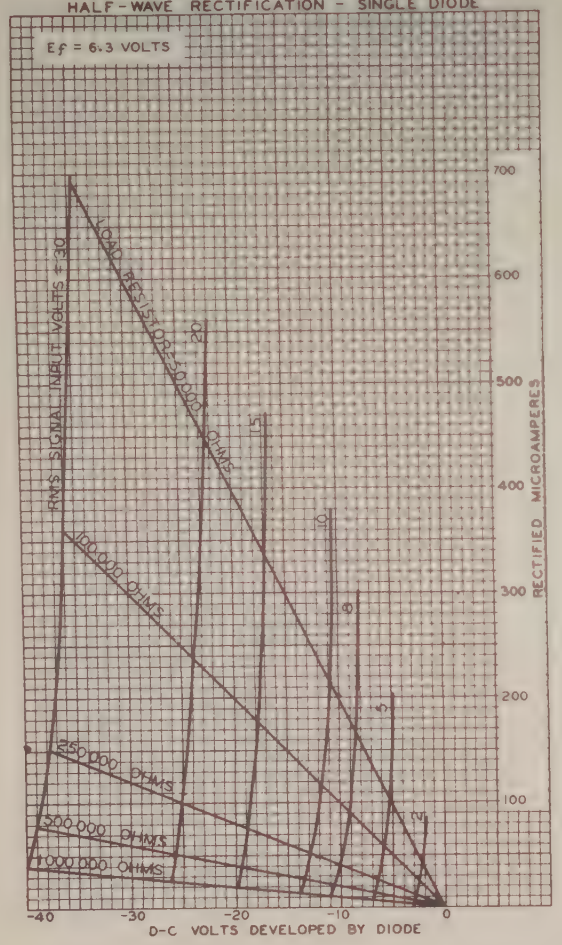
6H6

TYPE JAN-6H6

6H6

AVERAGE CHARACTERISTICS

HALF-WAVE RECTIFICATION - SINGLE DIODE



JULY 26, 1935 RCA RADIOTRON DIVISION RCA MANUFACTURING COMPANY INC. 92C-4446

6J5 6J5-GT/G

TYPE JAN-6J5, 6J5-GT/G

6J5, 6J5-GT/G

DETECTOR AMPLIFIER TRIODE

	6J5	6J5-GT/G
Heater■	[illegible] insulated [illegible] potential cathode	
Voltage	6.3	a-c or d-c volts
Current	0.3	amp.
Direct Interelectrode Cap.	▲	▲▲
Grid to Plate	3.4	3.0 μμf
Grid to Cathode	3.4	4.. μμf
Plate to Cathode	3.6	3.. μμf
Maximum Overall Length	[illegible]	3-[illegible]
Maximum Seated Height	[illegible]	[illegible]
Maximum Diameter	[illegible]	[illegible]
Bulb	Metal Shell, MT-8	T-9
Base	Small Wafer / Octal 6-Pin	Sm. Wafer Octal 6-Pin, Sleeve
Basing Designation	6Q	GT-6Q
Pin 1	6J5, Shell / 6J5-GT/G, Base Sleeve	Pin 3 - Plate
Pin 2	Heater	Pin 5 - Grid
		Pin 7 - Heater
		Pin 8 - Cathode
Mounting Position		Any

BOTTOM VIEW

Maximum and Minimum Ratings Are Design-Center Values

AMPLIFIER

Plate Voltage		300 max.	volts
Grid Voltage		0 min.	volts
Plate Dissipation		2.5 max.	watts
Typical Operation and Characteristics-Class A, Amplifier:			
Plate	90	250	volts
Grid■	0	-8	volts
Amp. Fact.	20	20	
Plate Res.	6700	7700	ohms
Transcond.	3000	2600	μmhos
Plate Cur.	10	9	ma.

Typical Operation with Resistance Coupling:
See RESISTANCE-COUPLED AMPLIFIER CHART.

■ In circuits where the cathode is not directly connected to the heater, the potential difference between heater and cathode should be kept as low as possible.
▲ With shell connected to cathode. Values are approximate.
▲▲ With shield connected to cathode. Values are approximate.
▪ Under maximum rated conditions, the d-c resistance in the grid circuit should not exceed 1.0 megohm.

Dec. 1, 1942 RCA RADIOTRON DIVISION RCA MANUFACTURING COMPANY INC. DATA

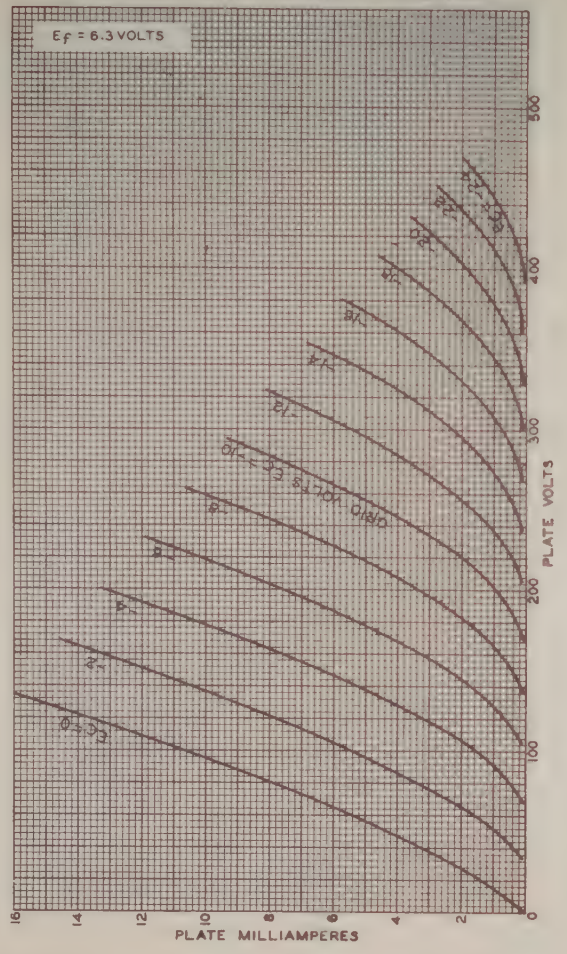
TYPE JAN-6J5

Cunningham Radiotron

RCA-6J5

6J5

AVERAGE PLATE CHARACTERISTICS



JUNE 7, 1937 RCA RADIOTRON DIVISION RCA MANUFACTURING COMPANY, INC. 92C-4771

TYPE JAN-955

955

955

DETECTOR, AMPLIFIER, OSCILLATOR

ACORN TYPE

Especially for wavelengths between 0.5 meter and 5 meters

Heater	Coated Unipotential Cathode	
Voltage	6.3	a-c or d-c volts
Current	0.15	amp.
Direct interelectrode capacitances:		
Grid to Plate	1.4	μμf
Grid to Cathode	1.7	μμf
Plate to Cathode	0.6	μμf
Overall Length		1-7/32" ± 5/32"
Overall Diameter (including terminals)		1-3/32" ± 1/16"
Bulb		T-4½
RCA Socket		Stock No. 9925
Mounting Position		Any

Maximum Ratings Are Design-Center Values

AMPLIFIER

D-C Plate Voltage	250 max.	volts
Plate Dissipation	1.6 max.	watts

Typical Operation and Characteristics - Class A_1 Amplifier:

D-C Plate Voltage	90	135	180	250	volts
D-C Grid Voltage *	-2.5	-3.75	-5	-7	volts
Amplification Factor	25	25	25	25	
Plate Resistance	14700	13200	12500	11400	ohms
Transconductance	1700	1900	2000	2200	μmhos
D-C Plate Current	2.5	3.5	4.5	6.3	ma.
[illegible]	-	-	[illegible]	-	[illegible]
[illegible]	-	-	[illegible]	-	[illegible]

Typical Operation - Resistance-Coupled Amplifier:

Plate-Supply Voltage °	180		volts
D-C Grid Voltage *	-3.5		volts
Load Resistance	250000		ohms
Plate Current	0.42		ma.
Voltage Output (5% second harmonic)	45	RMS	volts
Voltage Amplification	20	approx.	

* The d-c resistance in the grid circuit should not exceed 0.5 megohm.
° This is a Plate-Supply voltage value. The voltage effective at plate will be plate-supply voltage minus the voltage drop in load caused by plate current.

R-F POWER AMPLIFIER & OSCILLATOR - Class C

Plate Modulated or C.W.

D-C Plate Voltage	180	max.	volts
D-C Plate Current	8	max.	ma.
D-C Grid Current	2	max.	ma.
Typical Operation:			
D-C Plate Voltage	180		volts
Grid Voltage	-35	approx.	volts
D-C Plate Current	7		ma.
D-C Grid Current	1.5	approx.	ma.
Power Output **	0.5	approx.	watt

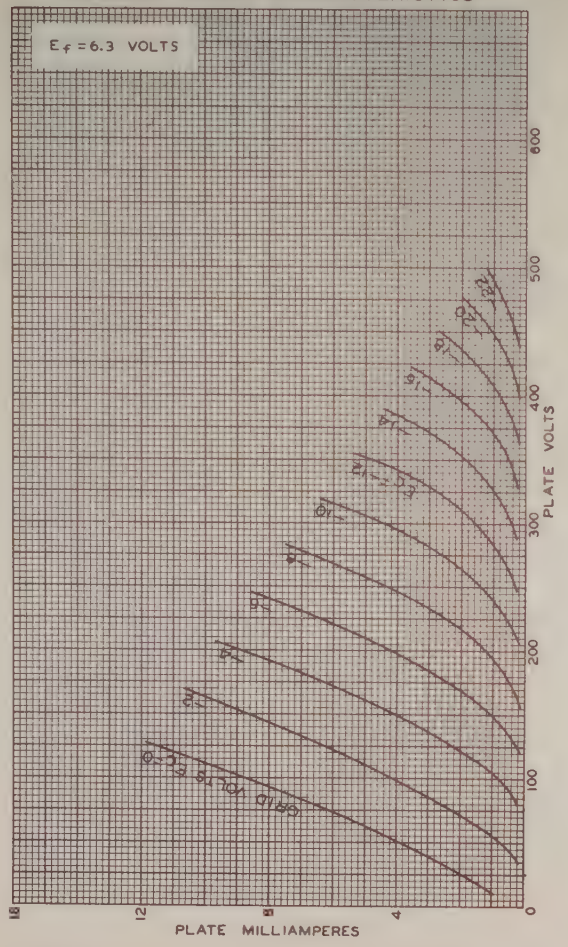
** At 5 meters. Only moderate reduction in this value will be found for wavelengths as low as 1 meter. Below 1 meter, the power output decreases as the wavelength is decreased.

Dec. 1, 1942 RCA RADIOTRON DIVISION RCA MANUFACTURING COMPANY, INC. DATA

TYPE JAN-955

955

AVERAGE PLATE CHARACTERISTICS



MAY 7, 1941 — RCA RADIOTRON DIVISION, RCA MANUFACTURING COMPANY, INC. — 92C-5561RI

TYPE JAN-VR150-30

VR150-30

VOLTAGE REGULATOR

Type	Glow Discharge
Maximum Overall Length	4-1/8"
Maximum Seated Height	3-9/16" ←
Maximum Diameter	1-9/16"
Bulb	ST-12
Base	Small Shell Octal 6-Pin
Pin 1 - No Connection	Pin 5 - Anode
Pin 2 - Cathode	Pin 7 - Jumper #
Pin 3 - Jumper #	Pin 8 - No Connection
Mounting Position	Any ←

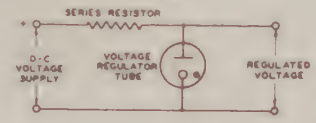
Maximum and Minimum Ratings Are Absolute Values

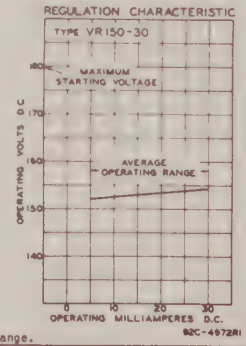
Operating Conditions:	
Starting Supply-Voltage	180 min. d-c volts
Operating Voltage (approx.)	150 d-c volts
Operating Current *	5 min. d-c ma.
	30 max. d-c ma.

\# With suitable socket connections, jumper within base acts as switch to open power-supply circuit when voltage regulator tube is removed from socket.

* Sufficient resistance must always be used in series with the tube to limit the current through it to 30 ma.

OUTLINE DIMENSIONS for the VR150-30 are the same as those for Type 884.





← Indicates a change.

May 1, 1942 — RCA RADIOTRON DIVISION, RCA MANUFACTURING COMPANY INC — DATA

"TYPICAL VACUUM TUBE CHARACTERISTICS"

6SJ7
6SJ7-GT

TYPE JAN-6SJ7, 6SJ7-GT

6SJ7, 6SJ7-GT

TRIPLE-GRID DETECTOR AMPLIFIER

Heater ■	Coated Unipotential Cathode		
Voltage	6.3		a-c or d-c volts
Current	0.3		amp.
Direct Inter. Cap.°		6SJ7	6SJ7-GT
Pentode Conn.	Grid to Plate	0.005	0.005 max. μμf
	Input	6.0	6.3 μμf
	Output	7.0	10 μμf
Triode Conn.†	Grid to Plate	2.8	2.8 μμf
	Grid to Cathode	3.4	3.4 μμf
	Plate to Cathode	11	11.0 μμf
Maximum Overall Length		2-5/8"	3-5/16"
Maximum Seated Height		2-1/16"	2-3/4"
Maximum Diameter		1-5/16"	1-5/16"
Bulb		Metal Shell MT-8	T-9
Base		Small Wafer Octal 8-Pin	Sm. Wafer Octal 8-Pin, Sleeve GT-8N
Basing Designation		8M	

Pin 1 { 6SJ7, Shell / 6SJ7-GT, Base Sleeve
Pin 2 – Heater
Pin 3 – Suppressor
Mounting Position: Any

Pin 4 – Grid
Pin 5 – Cathode
Pin 6 – Screen
Pin 7 – Heater
Pin 8 – Plate

Maximum And Minimum Ratings Are Design-Center Values

AMPLIFIER (Pentode Connection)

Plate Voltage		300 max.	volts
Screen Voltage		125 max.	volts
Screen Supply Voltage		300 max.	volts
Grid Voltage		0 min.	volts
Plate Dissipation		2.5 max.	watts
Screen Dissipation		0.3 max.	watt
Typical Operation and Characteristics-Class A_1 Amplifier:			
Plate	100	250	volts
Screen	100	100	volts
Grid	-3	-3	volts
Suppressor	Connected to cathode at socket		
Plate Res.	0.7	#	megohm
Transcond.	1575	1650	μmhos
Grid Bias for plate current = 10 μamp.	-8	-8	volts
Plate Cur.	2.9	3	ma.
Screen Cur.	0.9	0.8	ma.

AMPLIFIER (Triode Connection)†

Plate Voltage		250 max.	volts
Grid Voltage		0 min.	volts
Plate Dissipation		2.5 max.	watts
Typical Operation and Characteristics-Class A_1 Amplifier:			
Plate	180	250	volts
Grid	-6	-8.5	volts
Amp. Fact.	19	19	
Plate Res.	8250	7600	ohms
Transcond.	2300	2500	μmhos
Plate Cur.	6	9.2	ma.

■ In circuits where the cathode is not directly connected to the heater, the potential difference between heater and cathode should be kept as low as possible.
° With shell or external shield connected to cathode.
Greater than 1.0 megohm.
† With screen and suppressor connected to plate.
← Indicates a change.

For additional data, refer to RESISTANCE-COUPLED AMPLIFIER CHART.

June 1, 1942

RCA RADIOTRON DIVISION
RCA MANUFACTURING COMPANY INC.

DATA

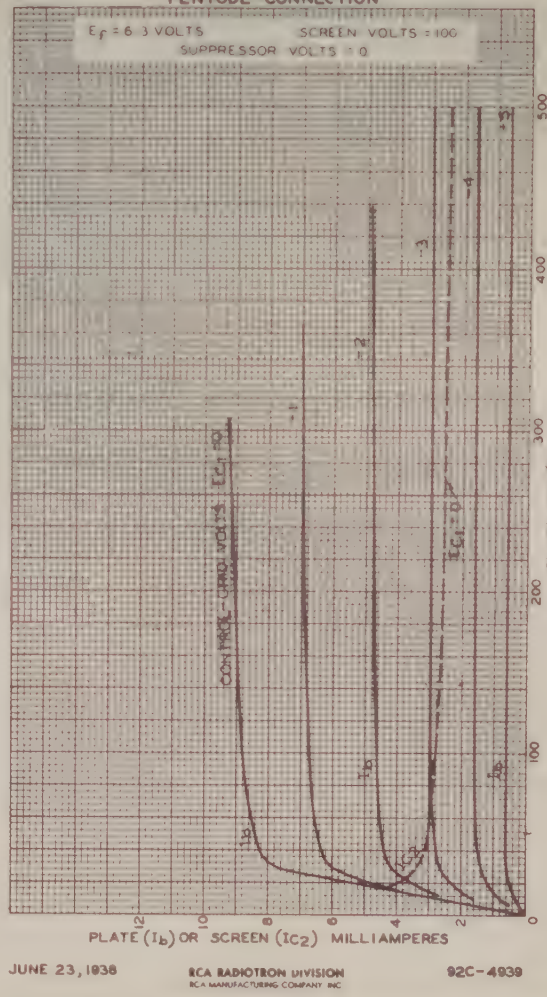
6SJ7

TYPE JAN-6SJ7

6SJ7

AVERAGE PLATE CHARACTERISTICS

PENTODE CONNECTION



JUNE 23, 1938

RCA RADIOTRON DIVISION
RCA MANUFACTURING COMPANY INC.

92C-4939

"TYPICAL VACUUM TUBE CHARACTERISTICS"

TYPE JAN-6V6,6V6-GT/G

6V6
6V6-GT/G

6V6, 6V6-GT/G

BEAM POWER AMPLIFIER

Heater ■	Coated Unipotential Cathode		
Voltage	6.3		a-c or d-c volts
Current	0.45		amp.
Direct Interelectrode Capacitances (Approx.):			
	6V6°	6V6-GT/G°°	
Grid to Plate	0.3	0.7	µµf
Input	10	9.5	µµf
Output	11	7.5	µµf
Maximum Overall Length	3-1/4"	3-5/16"	
Maximum Seated Height	2-11/16"	2-3/4"	
Maximum Diameter	1-5/16"	1-5/16"	
Bulb	Metal Shell, MT-8	T-9	
Base	Small Wafer; Octal 7-Pin	Intermed. Sh.; Octal 7-Pin	
Basing Designation	7AC	G-7AC	
Pin 1	6V6, Shell; 6V6-GT/G, No Con.	Pin 4 - Screen	
Pin 2 - Heater		Pin 5 - Grid	
Pin 3 - Plate		Pin 7 - Heater	
Mounting Position		Pin 8 - Cathode	Any

BOTTOM VIEW

Maximum Ratings Are Design-Center Values

SINGLE-TUBE AMPLIFIER

Plate Voltage			315 max.	volts
Screen Voltage			285 max.	volts
Plate Dissipation			12 max.	watts
Screen Dissipation			2 max.	watts
Typical Operation and Characteristics - Class A_1 Amplifier:				
Plate Voltage	180	250	315	volts
Screen Voltage	180	250	225	volts
Grid Voltage ■	-8.5	-12.5	-13	volts
Peak A-F Grid Volt.	8.5	12.5	13	volts
Zero-Sig. Plate Cur.	29	45	34	ma.
Max.-Sig. Plate Cur.	30	47	35	ma.
Zero-Sig. Screen Cur.	3	4.5	2.2 approx.	ma.
Max.-Sig. Screen Cur.	4	7	6 approx.	ma.
Plate Resistance	58000	52000	77000	ohms
Transconductance	3700	4100	3750	µmhos
Load Resistance	5500	5000	8500	ohms
Tot. Harmonic Dist.	8	8	12	%
Max.-Sig. Power Output	2	4.5	5.5	watts

■ In circuits where the cathode is not directly connected to the heater, the potential difference between heater and cathode should be kept as low as possible.
° With shell connected to cathode.
°° With no external shield.

→ Indicates a change.

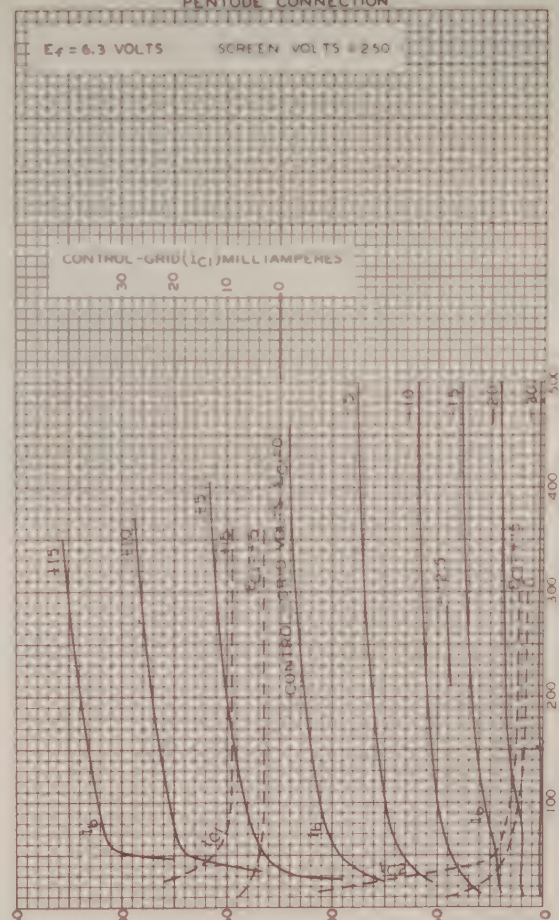
May 1, 1942 — RCA RADIOTRON DIVISION, RCA MANUFACTURING COMPANY INC. — DATA

TYPE JAN-6V6,6V6-GT/G

6V6
6V6 GT/G

6V6, 6V6-GT/G

AVERAGE PLATE CHARACTERISTICS
PENTODE CONNECTION



NOV. 3, 1941 — RCA RADIOTRON DIVISION, RCA MANUFACTURING COMPANY INC. — 92C-4807R1

TYPE JAN-5U4-G

5U4-G

FULL-WAVE HIGH-VACUUM RECTIFIER

Filament	Coated	
Voltage	5.0	a-c volts
Current	3.0	amp.
Maximum Overall Length		5-5/16"
Maximum Diameter		2-1/16"
Bulb		ST-16
Base		Medium Shell Octal 5-Pin
Pin 1 - No Connection		
Pin 2 - Filament		Pin 6 - Plate #1
Pin 4 - Plate #2		Pin 8 - Filament
Mounting Position		Vertical◊

BOTTOM VIEW (G-5T)

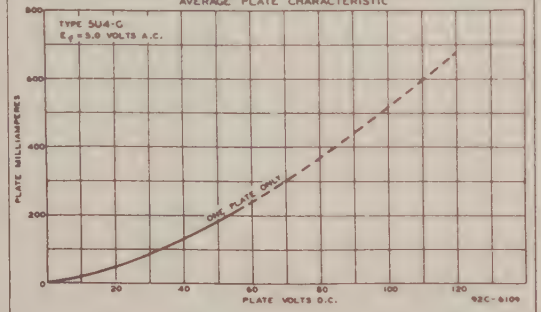
FULL-WAVE RECTIFIER

Peak Inverse Voltage	1550 max. volts
Peak Plate Current per Plate	675 max. ma.
Typical Operation with Condenser-Input Filter:	
A-C Plate Voltage per Plate (RMS)	450 max. volts
Total Effective Plate-Supply Impedance per Plate▲	75 min. ohms
D-C Output Current	225 max. ma.
Typical Operation with Choke-Input Filter:	
A-C Plate Voltage per Plate (RMS)	550 max. volts
Input-Choke Inductance	3 min. henries
D-C Output Current	225 max. ma.

◊ Horizontal operation permitted if pins 1 and 8 are in vertical plane.

▲ When a filter-input condenser larger than 40 μf is used, it may be necessary to use more plate-supply impedance than the minimum value shown to limit the peak plate current to the rated value.

AVERAGE PLATE CHARACTERISTIC

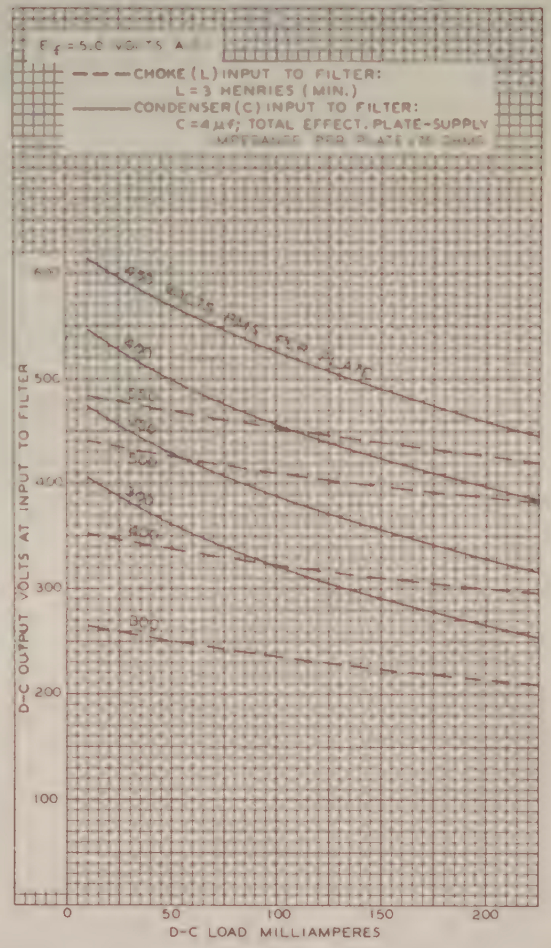


FEB. 2, 1940 RCA RADIOTRON DIVISION RCA MANUFACTURING COMPANY, INC. DATA

TYPE JAN-5U4-G

5U4-G

OPERATION CHARACTERISTICS


Ef = 5.0 VOLTS A.C.
CHOKE (L) INPUT TO FILTER:
L = 3 HENRIES (MIN.)
CONDENSER (C) INPUT TO FILTER:
C = 4 μf; TOTAL EFFECT. PLATE-SUPPLY
D-C OUTPUT VOLTS AT INPUT TO FILTER
D-C LOAD MILLIAMPERES

JAN. 10, 1940 RCA RADIOTRON DIVISION RCA MANUFACTURING COMPANY, INC. 92C-6071R1

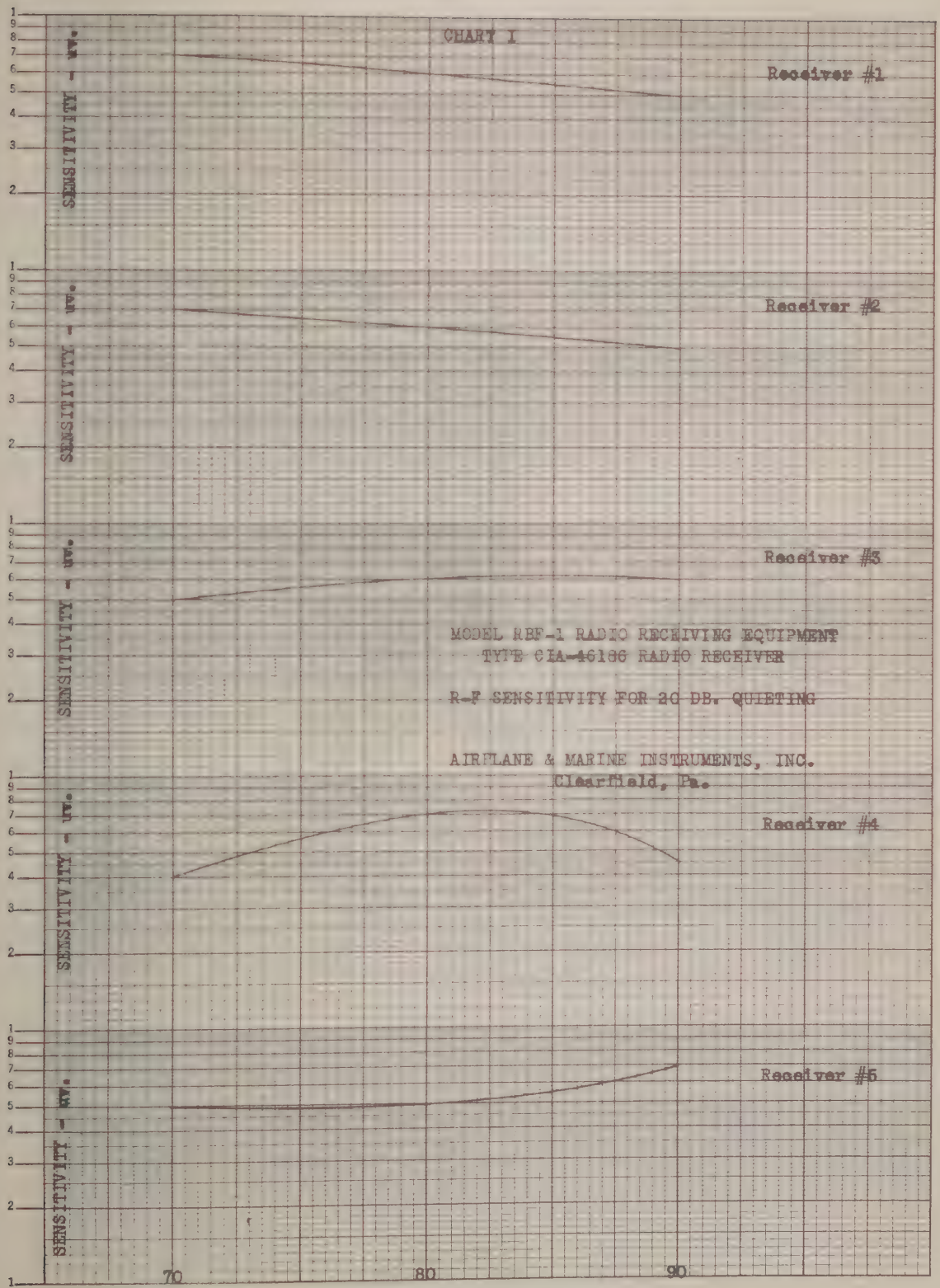


Chart I, TYPICAL SENSITIVITY CURVES

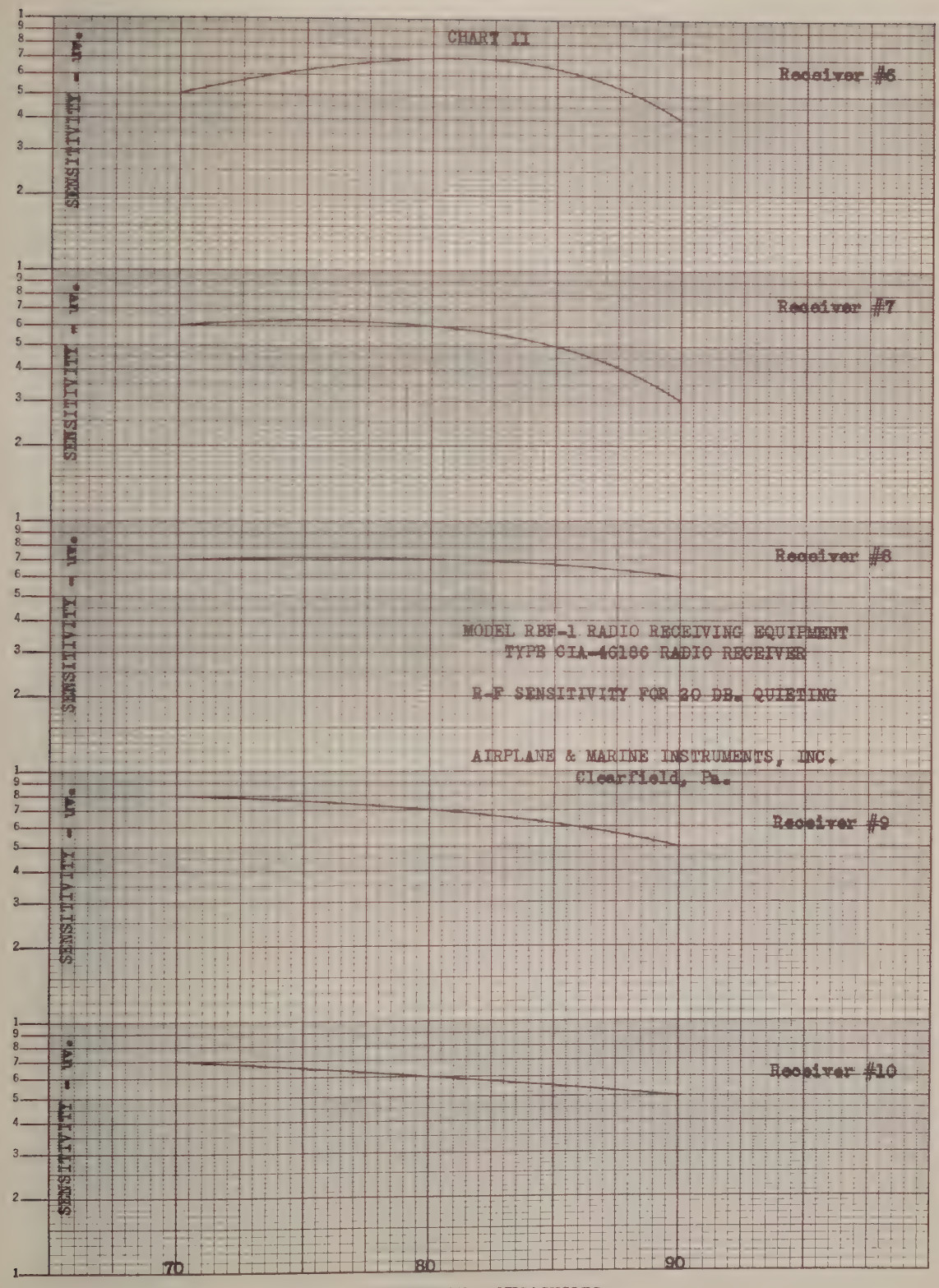


Chart II, TYPICAL SENSITIVITY CURVES

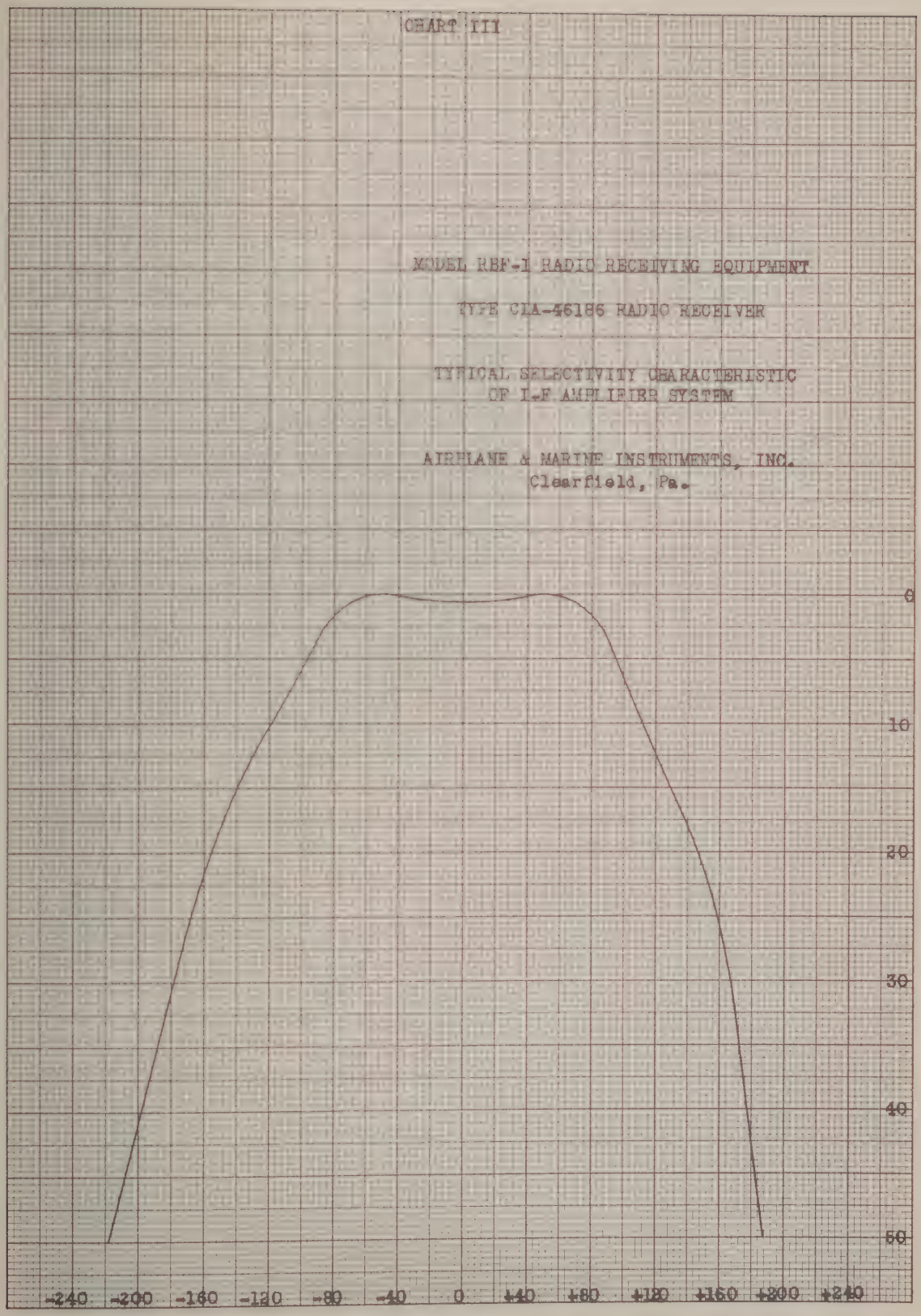


Chart III, TYPICAL SELECTIVITY CURVE

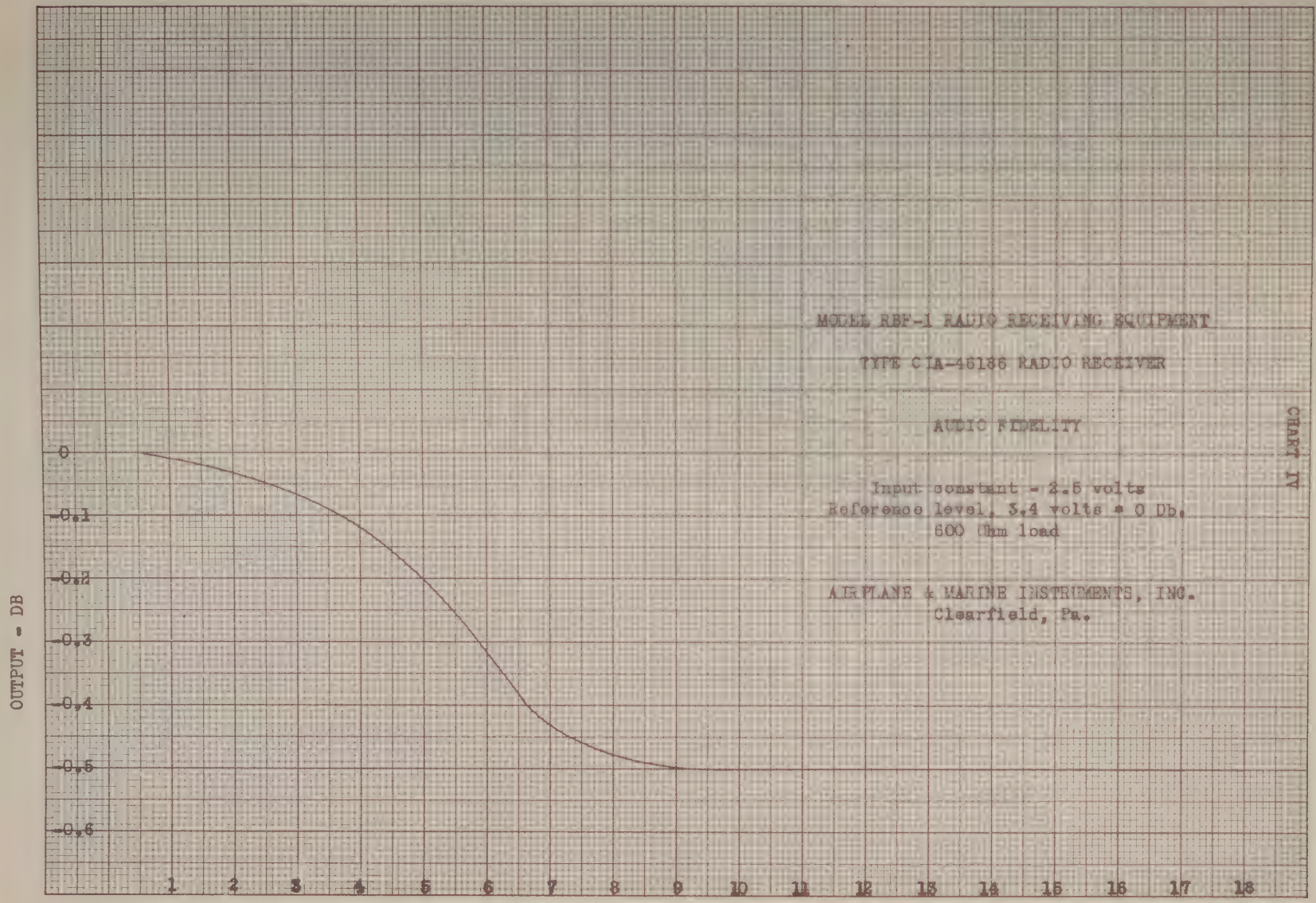


Chart IV, TYPICAL AUDIO FIDELITY CURVE FOR RADIO RECEIVER UNIT

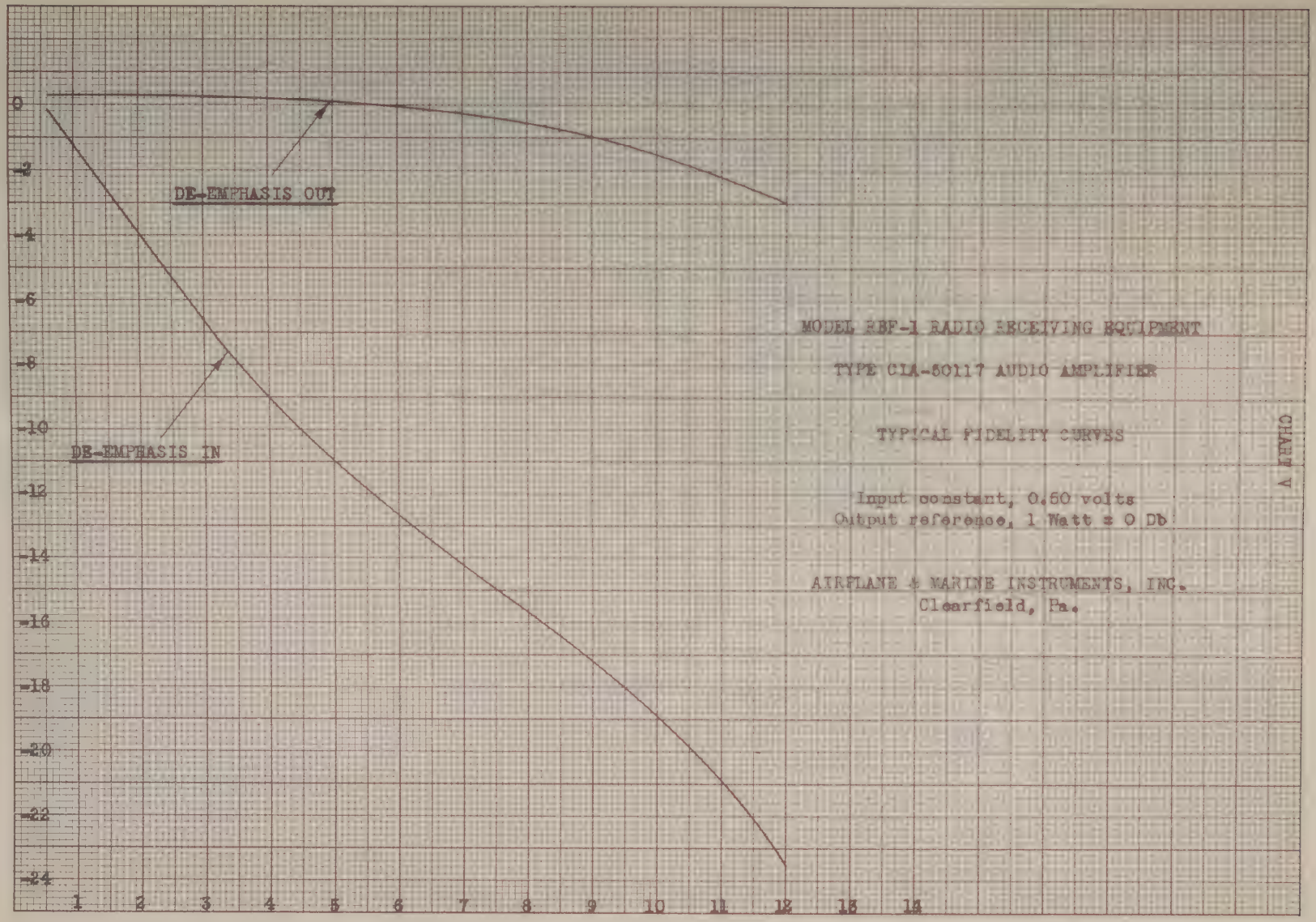


Chart V, TYPICAL FIDELITY CURVES FOR AUDIO AMPLIFIER UNIT

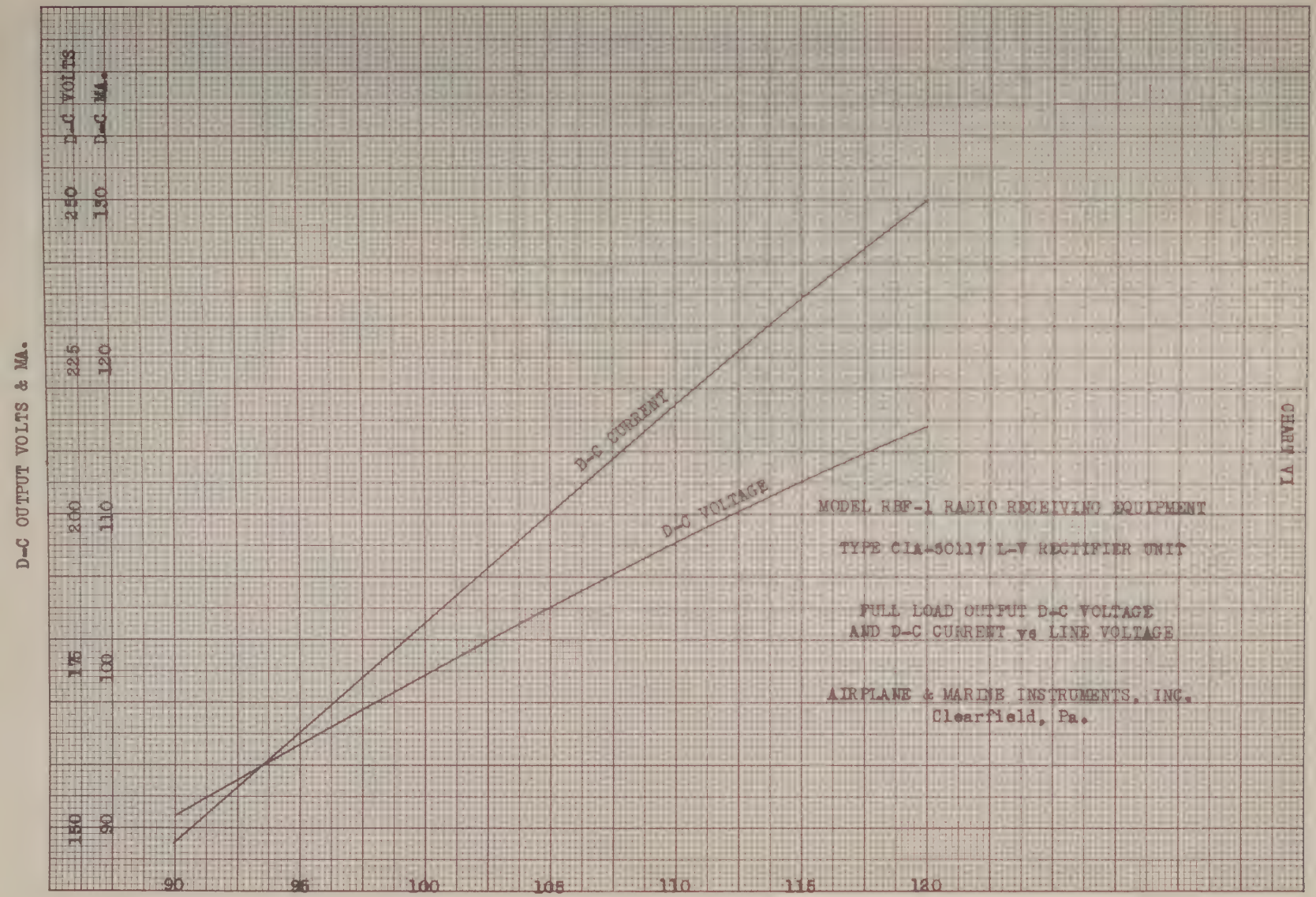


Chart VI, TYPICAL LINE VOLTAGE REGULATION CURVES FOR L-V RECTIFIER UNIT

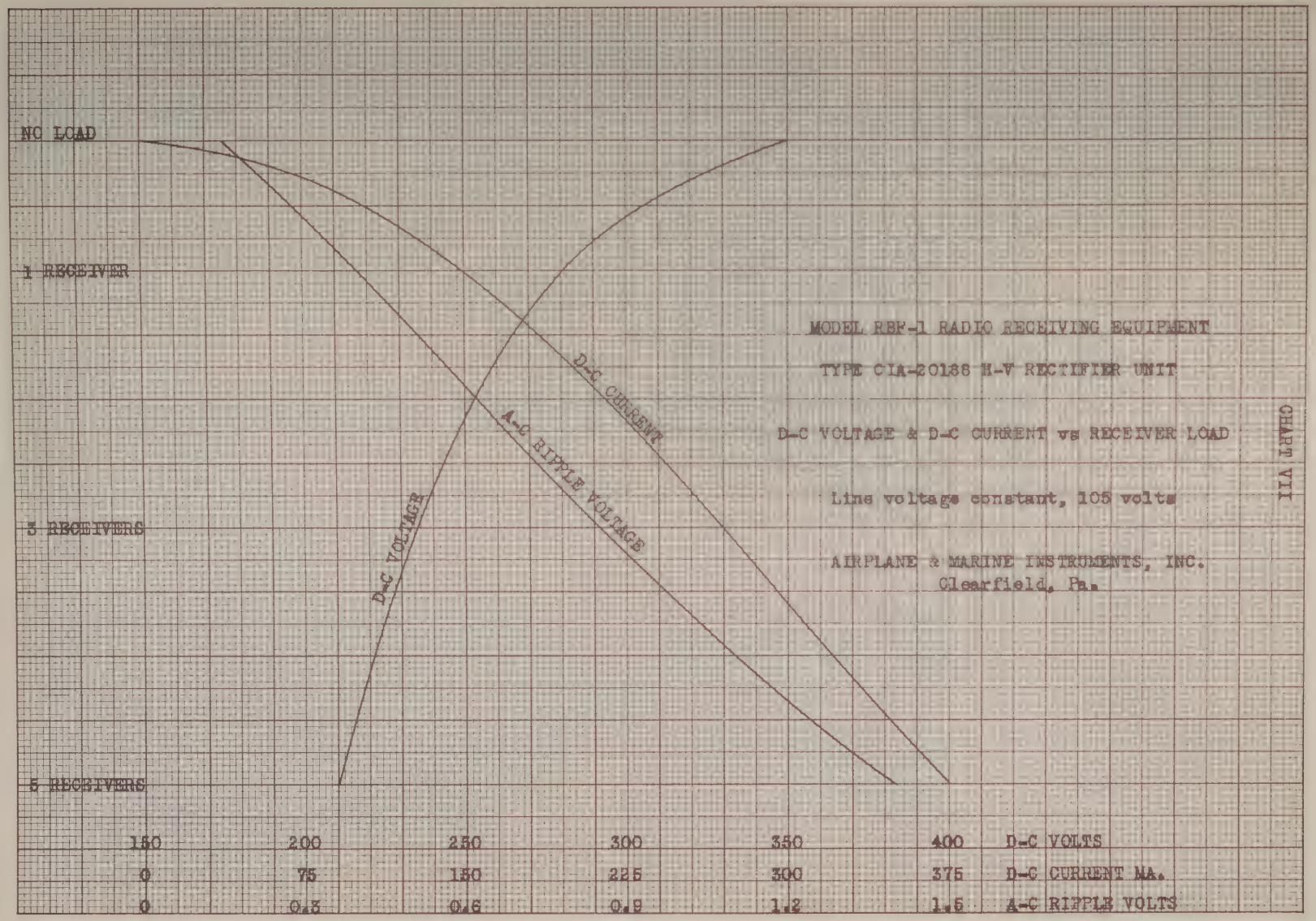

NO LOAD
1 RECEIVER
3 RECEIVERS
5 RECEIVERS
D-C VOLTAGE
D-C CURRENT
A-C RIPPLE VOLTAGE
MODEL RBF-1 RADIO RECEIVING EQUIPMENT
TYPE CIA-20188 H-V RECTIFIER UNIT
D-C VOLTAGE & D-C CURRENT vs RECEIVER LOAD
Line voltage constant, 105 volts
AIRPLANE & MARINE INSTRUMENTS, INC.
Clearfield, Pa.
CHART VII
150 200 250 300 350 400 D-C VOLTS
0 75 150 225 300 375 D-C CURRENT MA.
0 0.5 0.6 0.9 1.2 1.5 A-C RIPPLE VOLTS

Chart VII, TYPICAL LOAD REGULATION CURVES FOR H-V RECTIFIER UNIT

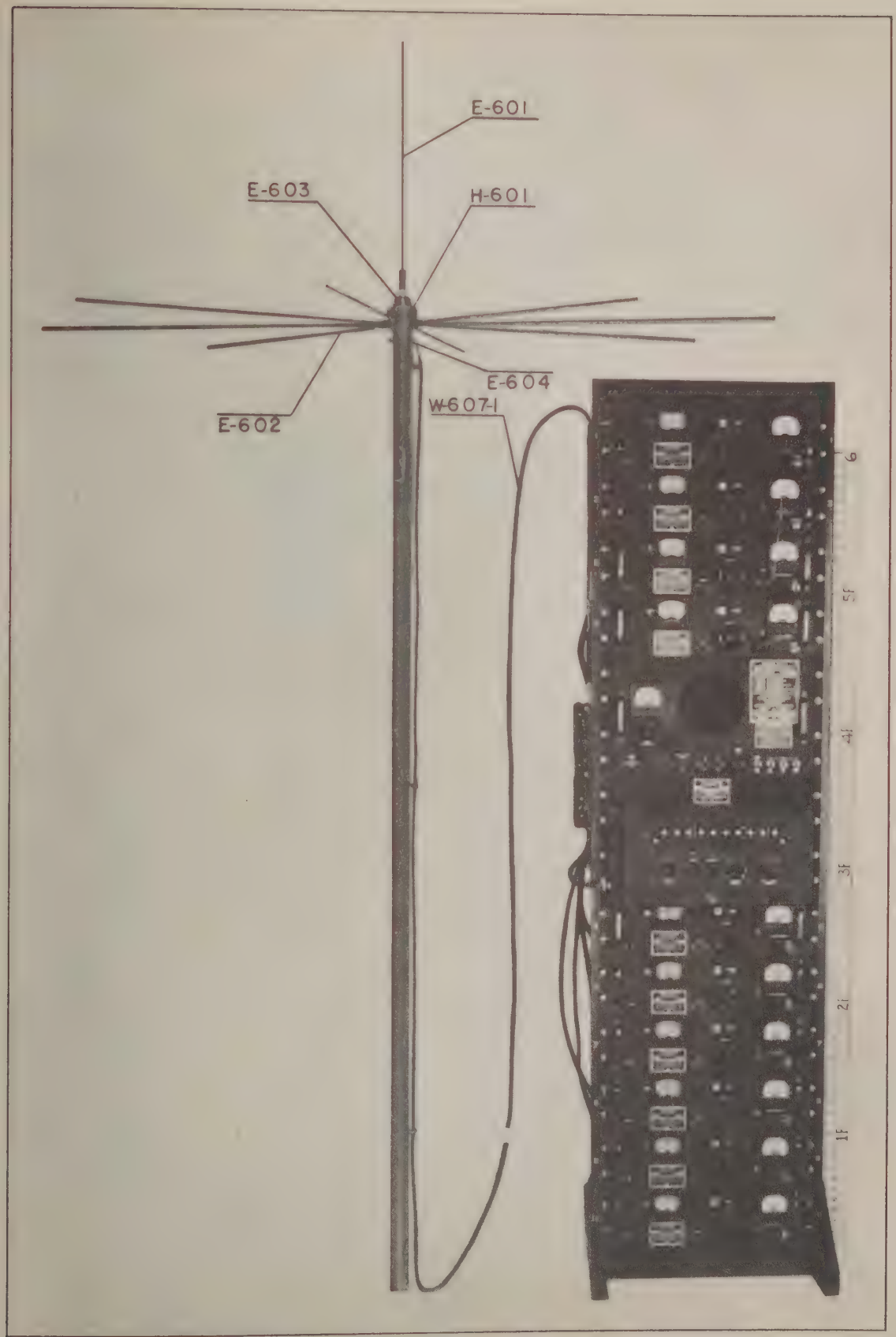


Figure 1, MODEL RBF-1 RADIO RECEIVING EQUIPMENT-
ASSEMBLED FOR OPERATION

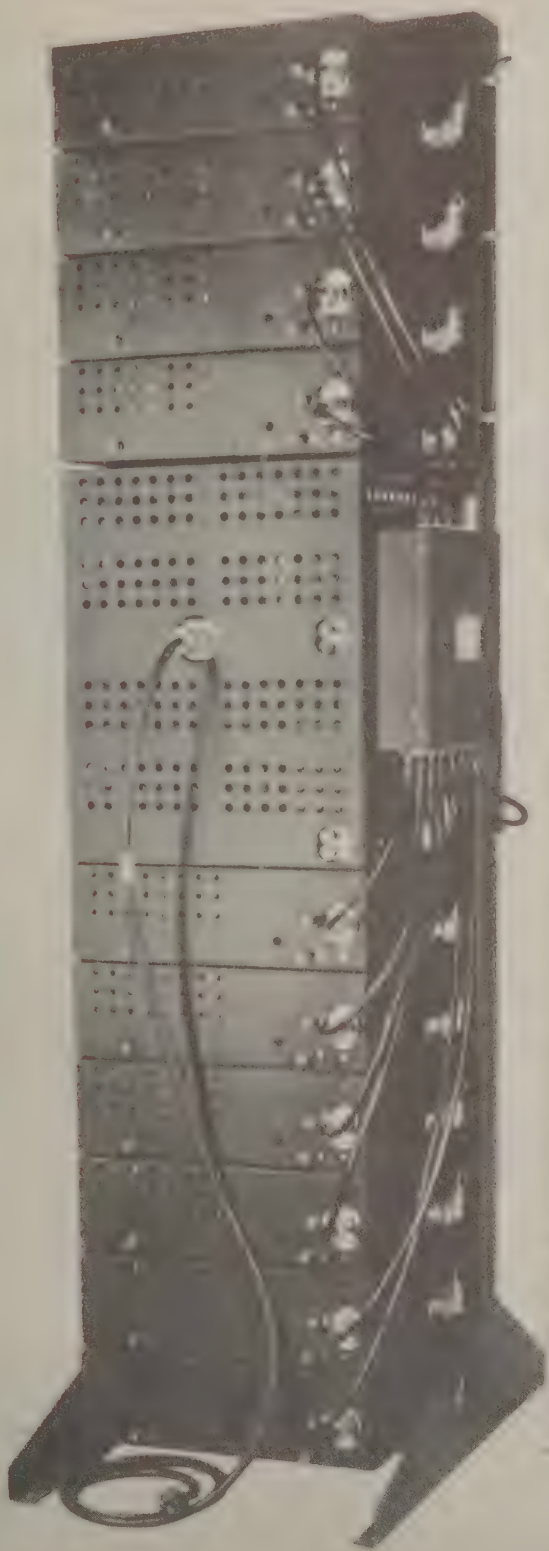


Figure 2, MODEL RBF-1 RADIO RECEIVING EQUIPMENT–
REAR OBLIQUE VIEW, LEFT SIDE

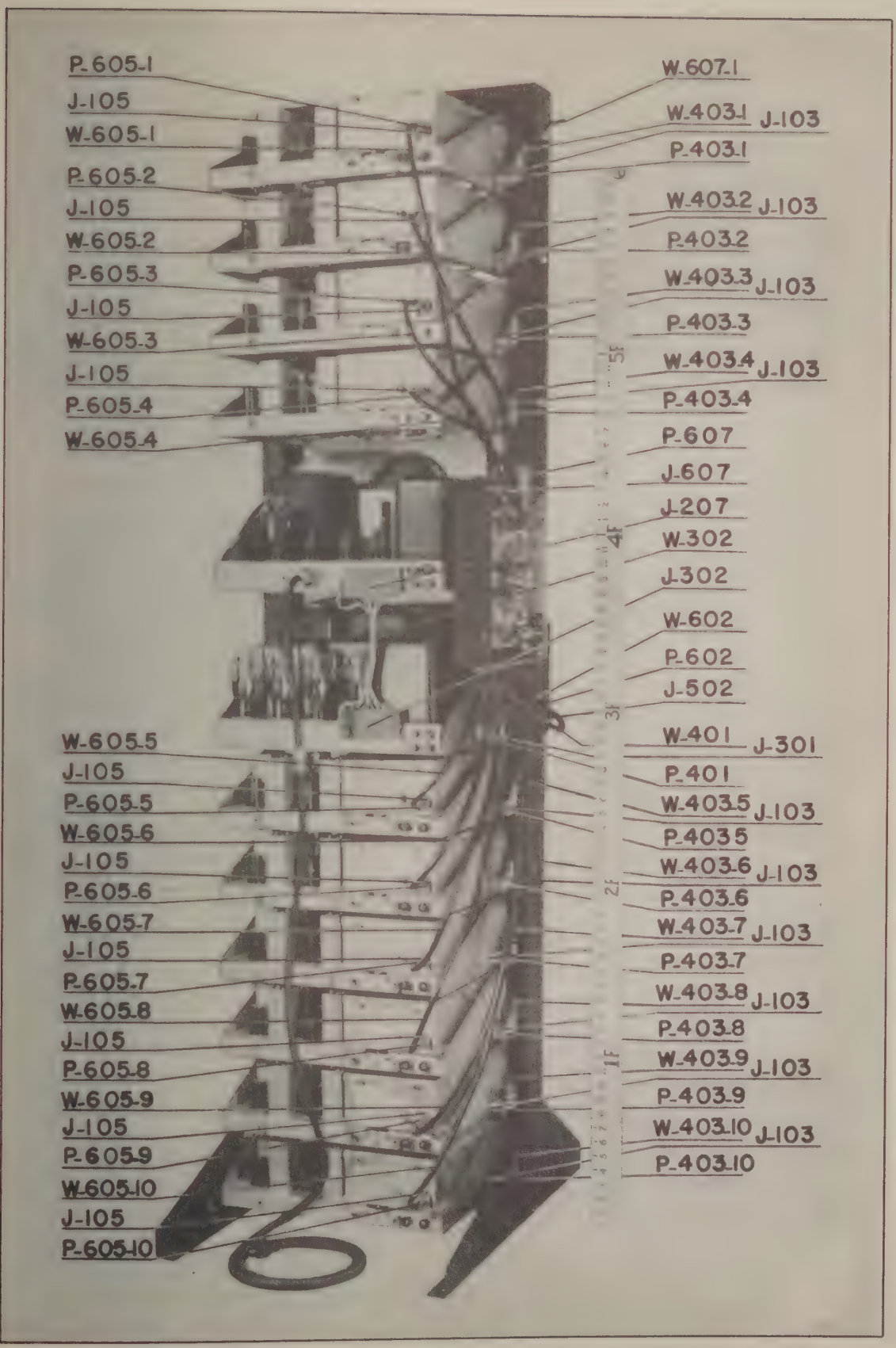


Figure 3, MODEL RBF-1 RADIO RECEIVING EQUIPMENT—
REAR OBLIQUE VIEW, LEFT SIDE, COVER REMOVED

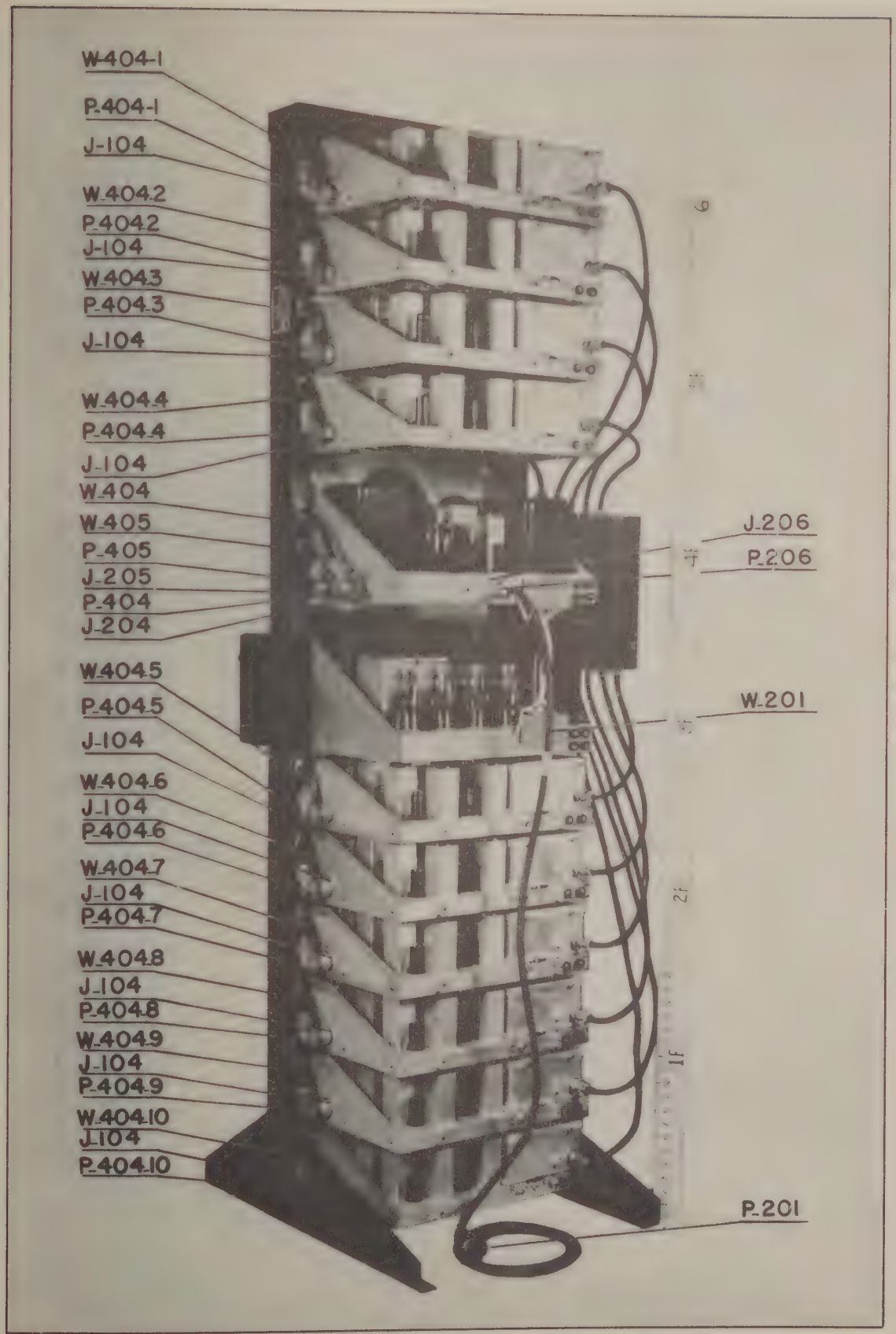


Figure 4, MODEL RBF-1 RADIO RECEIVING EQUIPMENT—
REAR OBLIQUE VIEW, RIGHT SIDE, COVER REMOVED

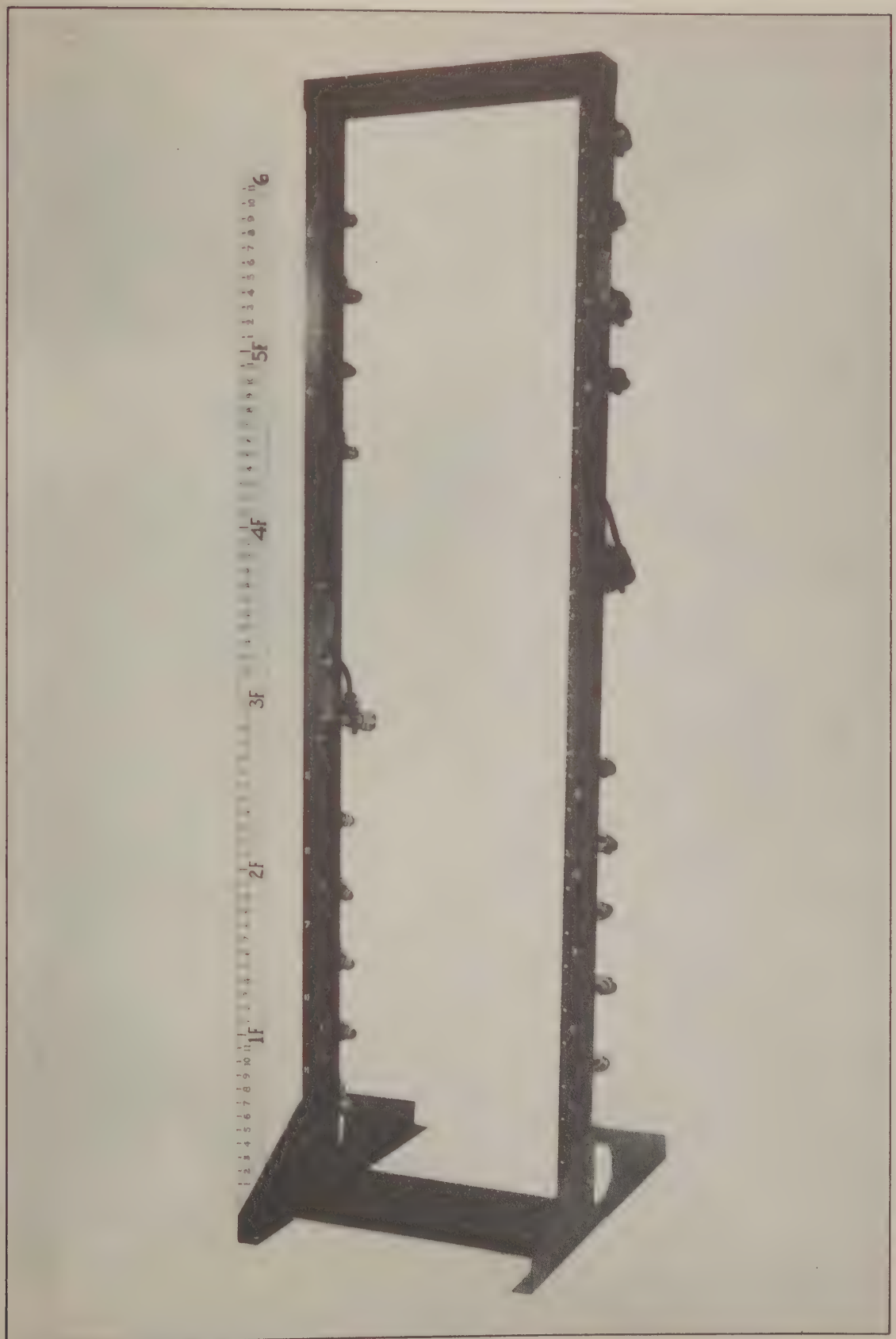


Figure 5, TYPE CIA-10123 MOUNTING RACK, FRONT VIEW

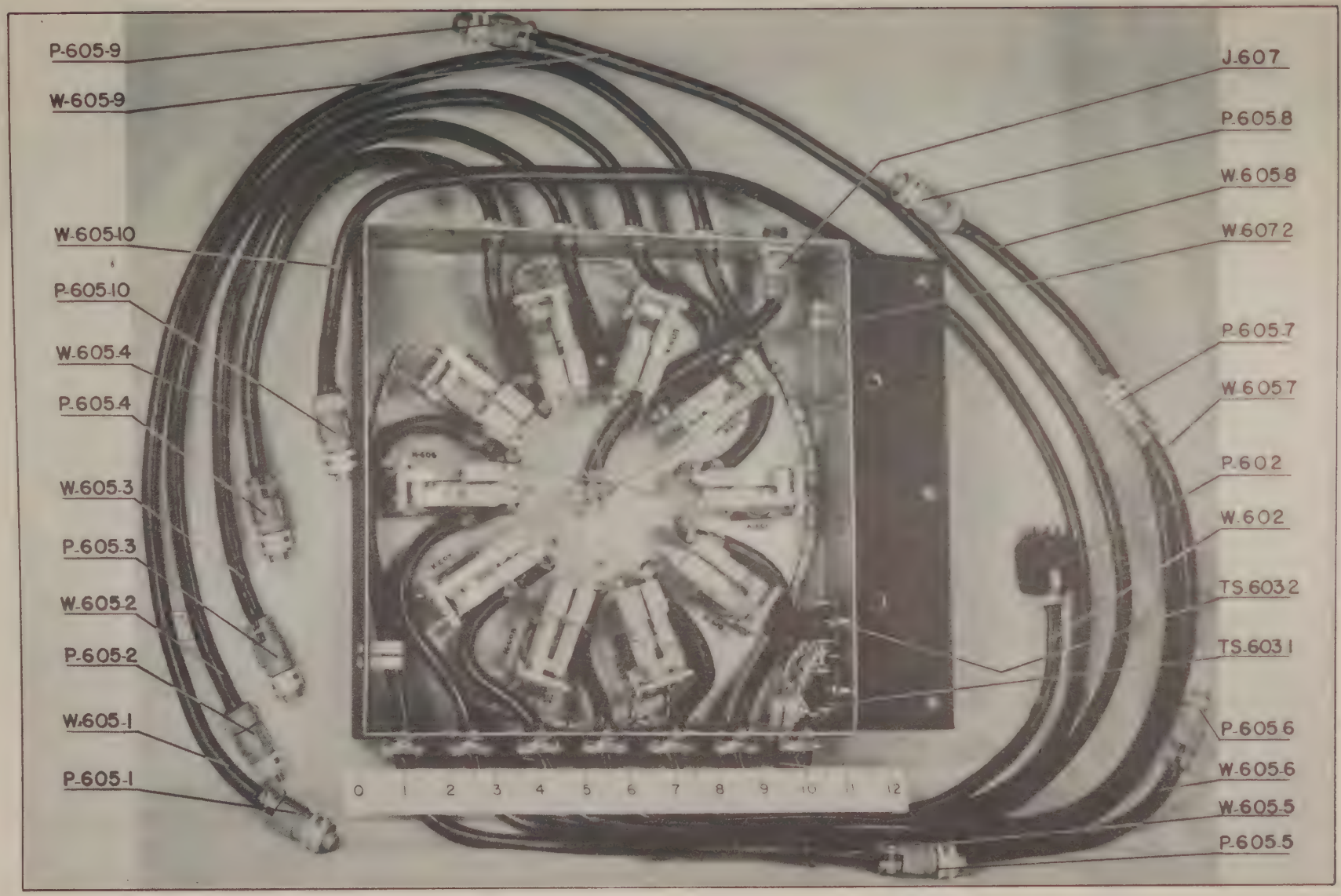


Figure 6, TYPE CIA-23363 ANTENNA SWITCHING UNIT, COVER REMOVED

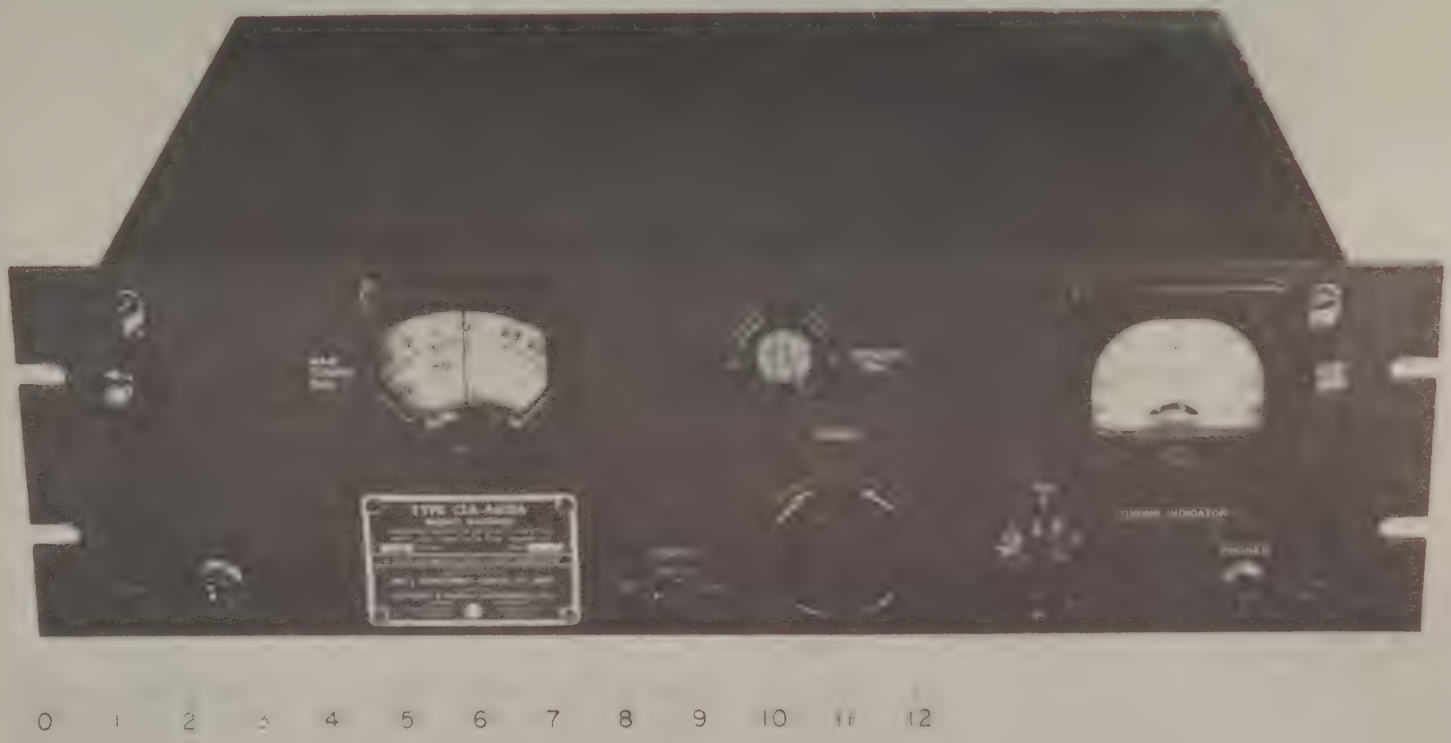


Figure 7, TYPE CIA-46186 RADIO RECEIVER, FRONT OBLIQUE VIEW

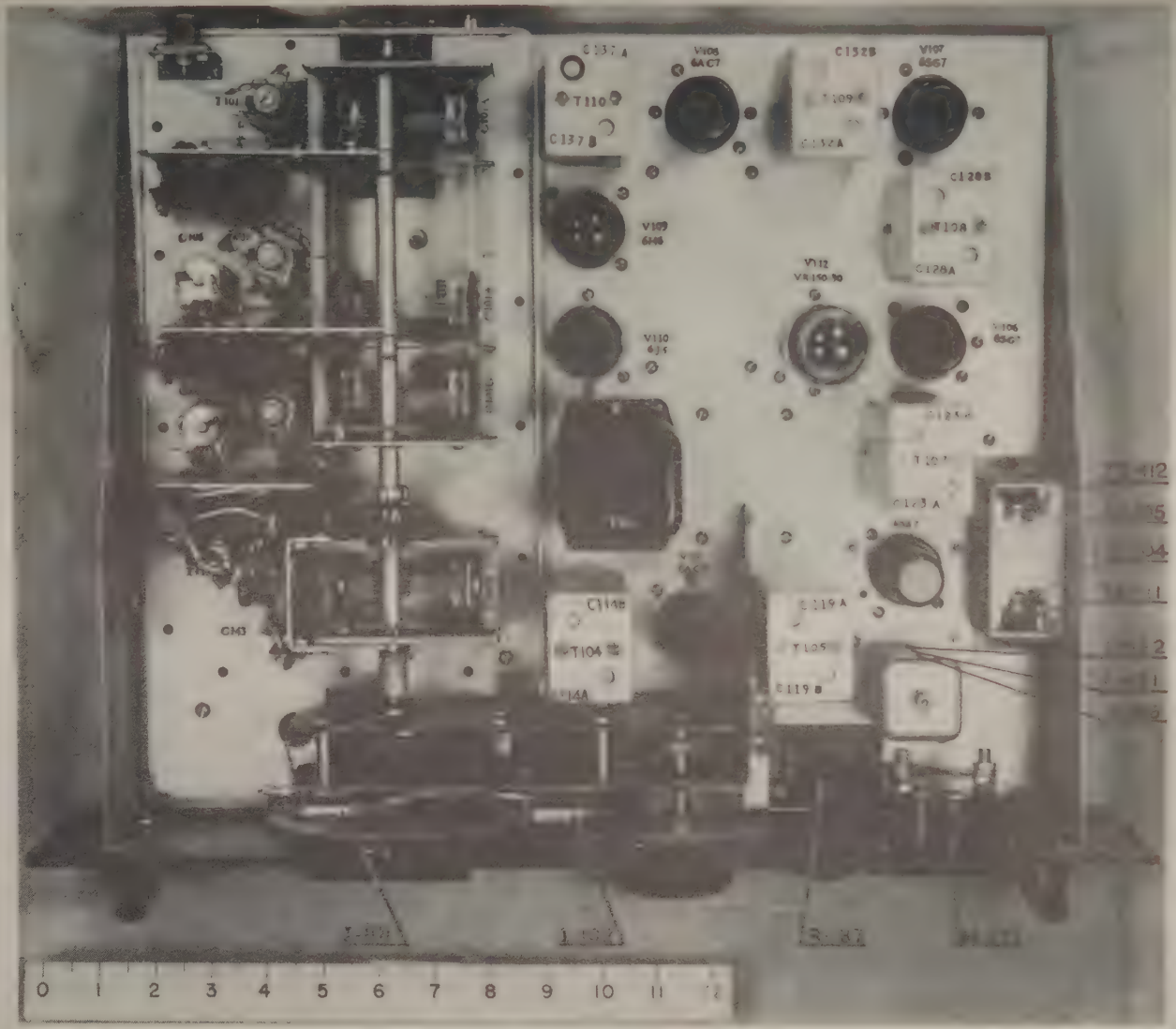


Figure 8, TYPE CIA-46186 RADIO RECEIVER, TOP VIEW, COVER REMOVED

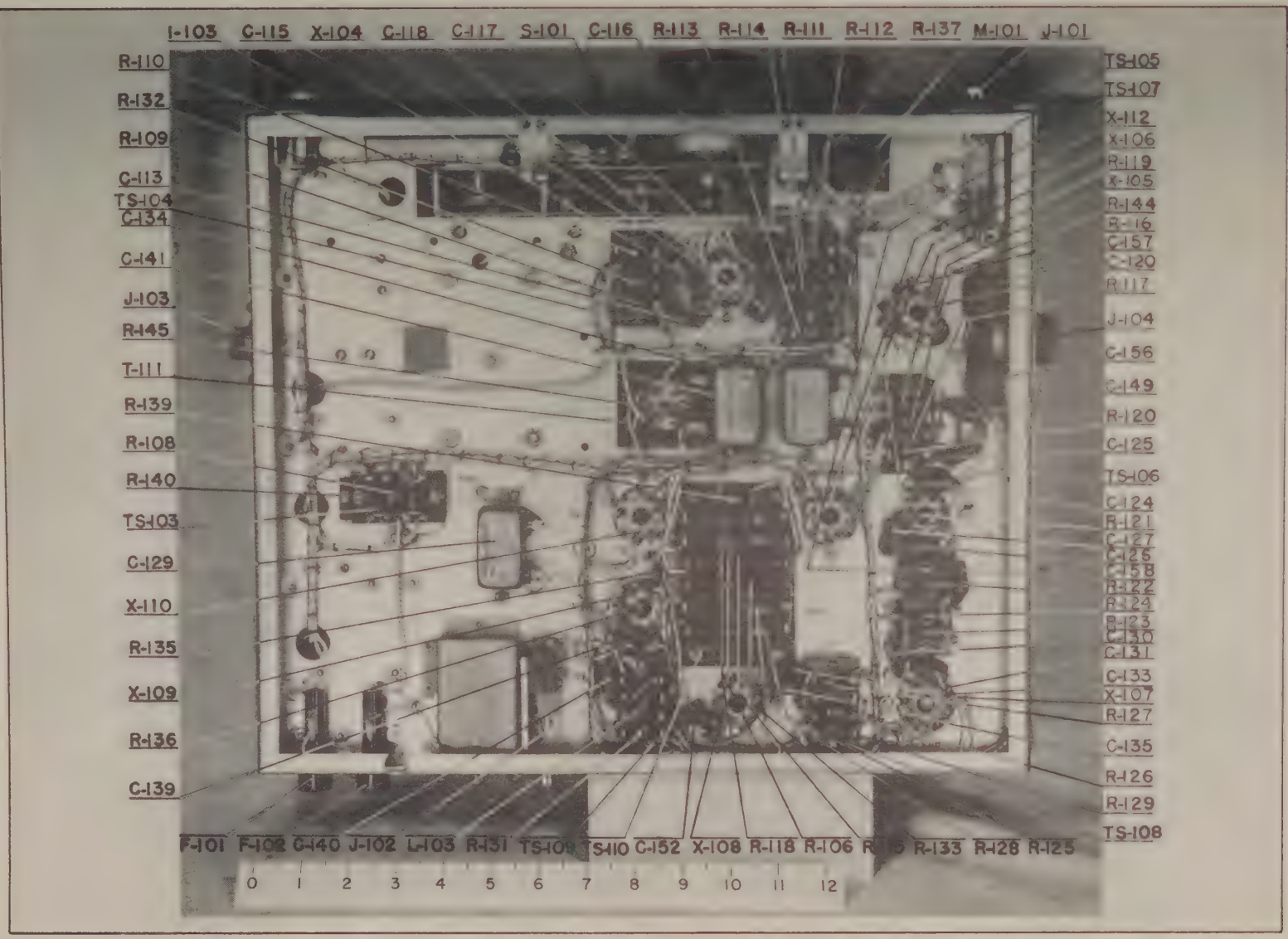


Figure 9, TYPE CIA-46186 RADIO RECEIVER, BOTTOM VIEW, COVER REMOVED

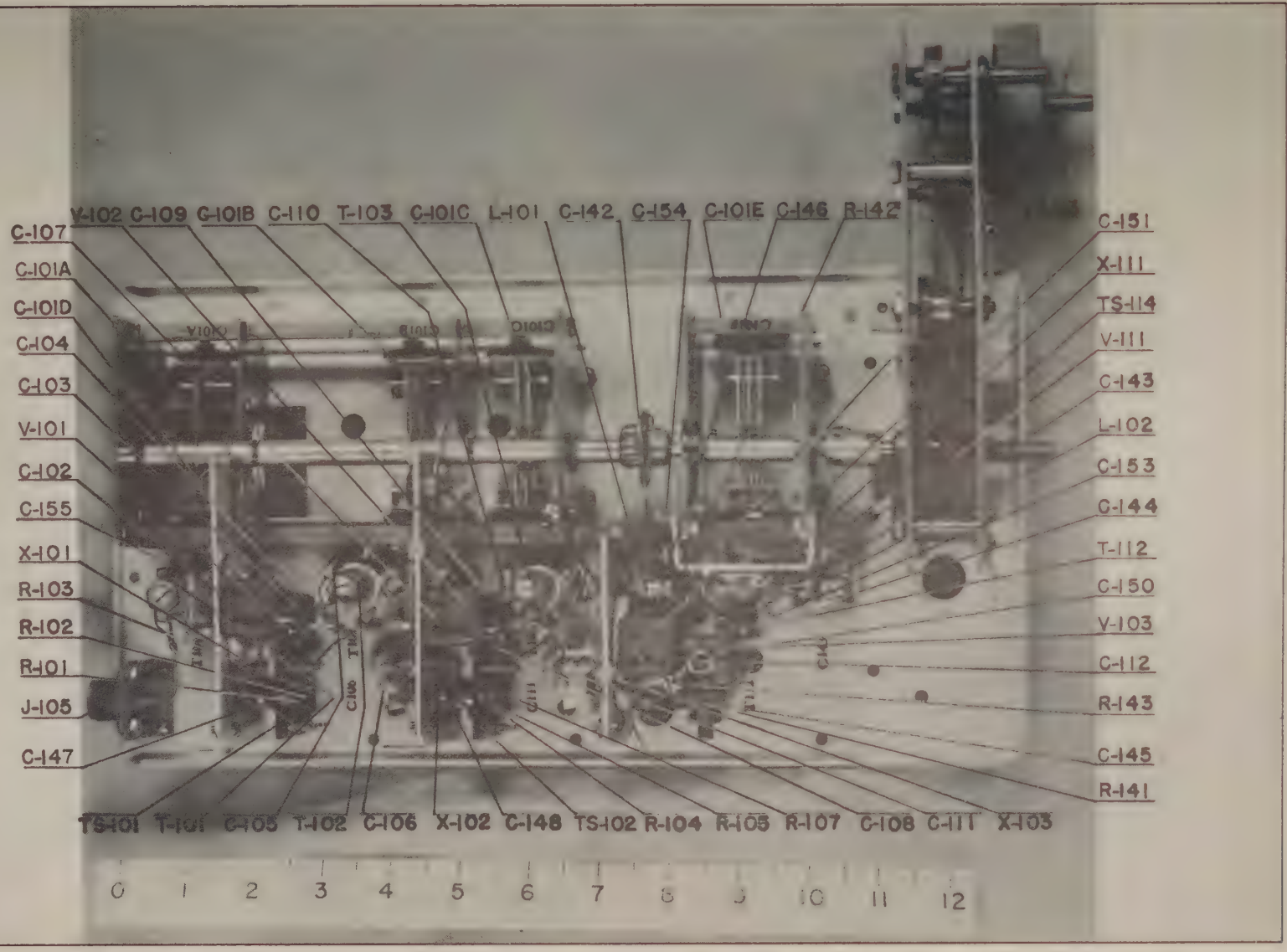


Figure 10, TYPE CIA-46186 RADIO RECEIVER, R-F TUNING UNIT, TOP VIEW, COVER REMOVED

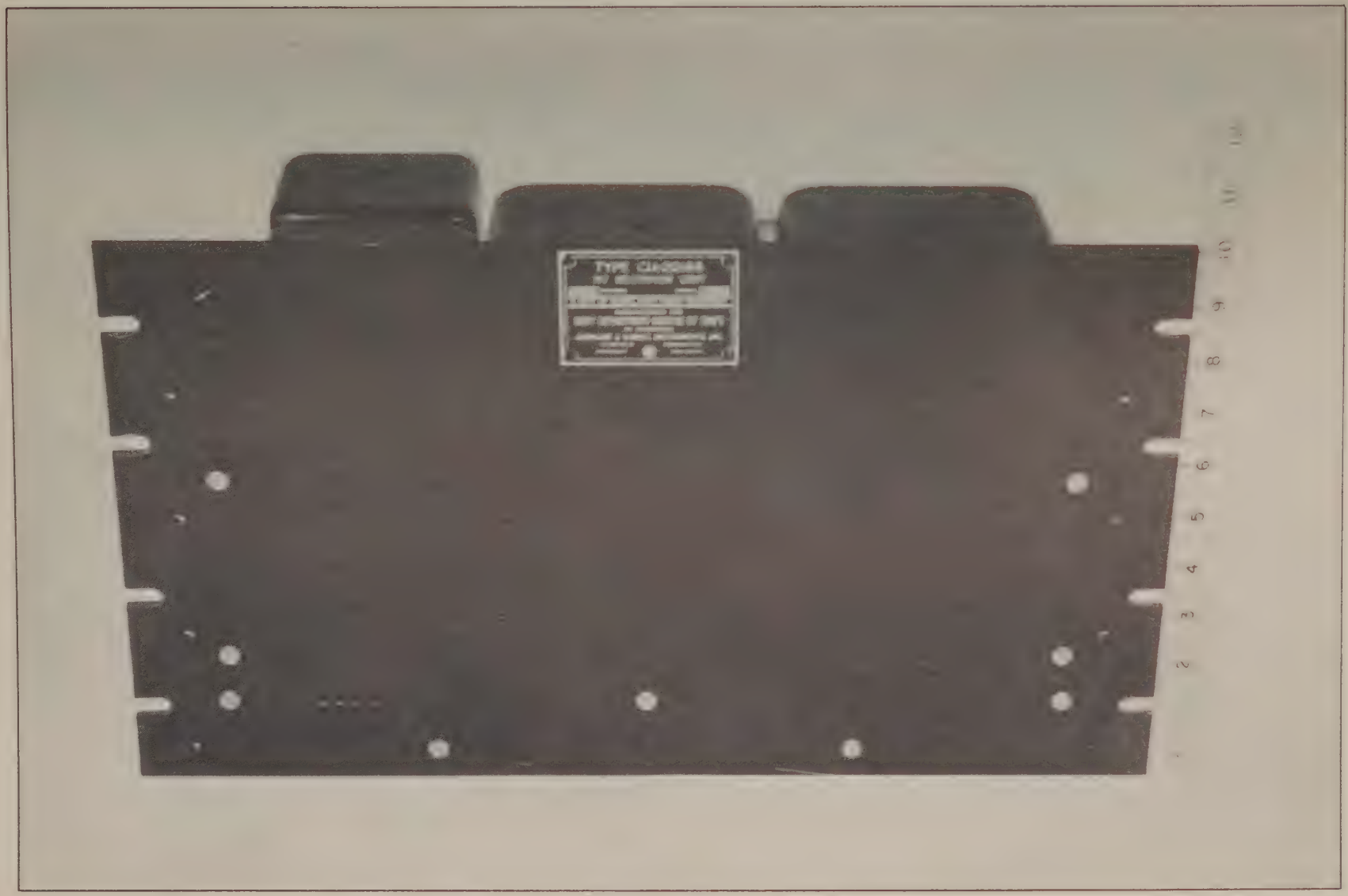


Figure 11, TYPE CIA-20188 H-V RECTIFIER UNIT, FRONT VIEW

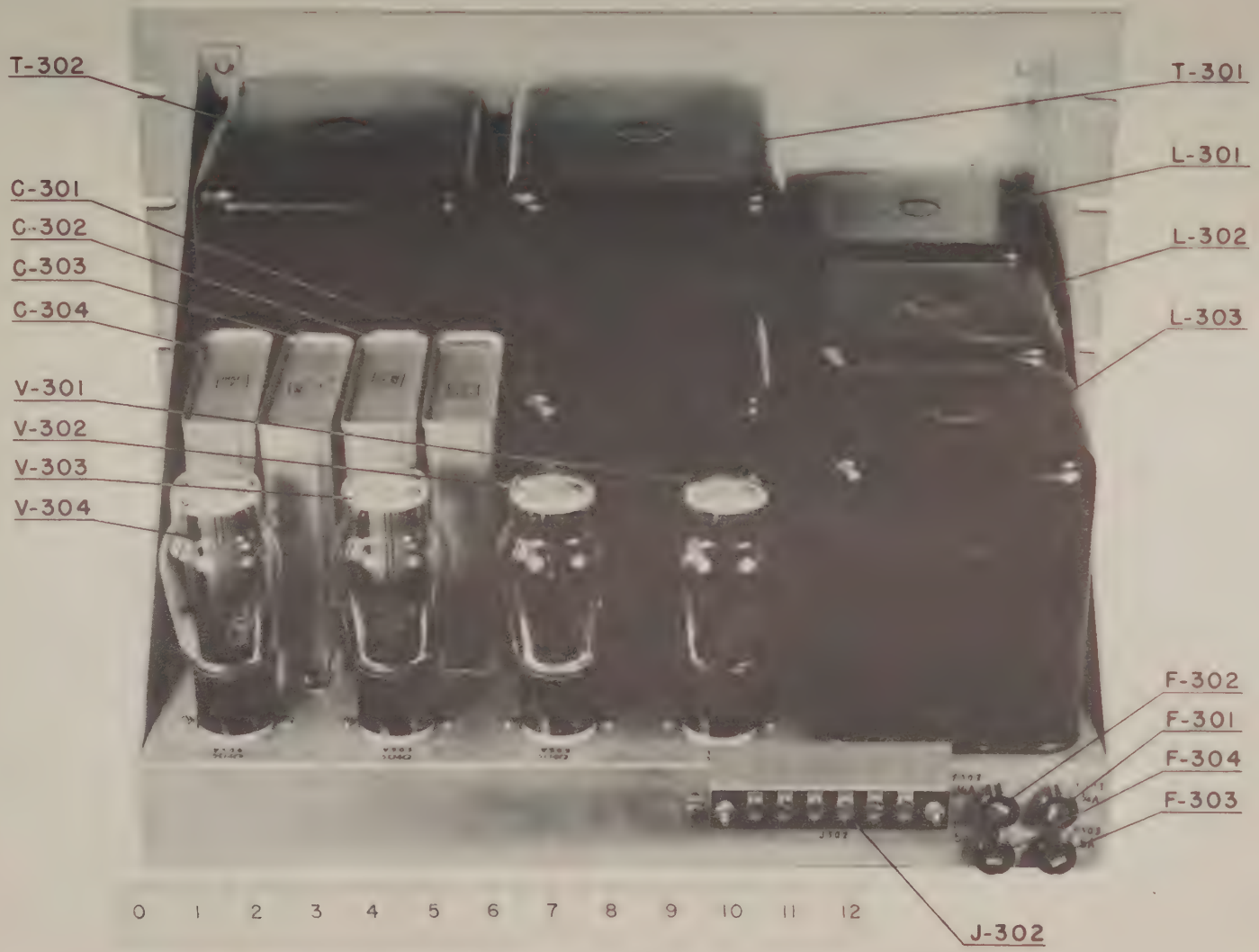


Figure 12, TYPE CIA-20188 H-V RECTIFIER UNIT, TOP VIEW

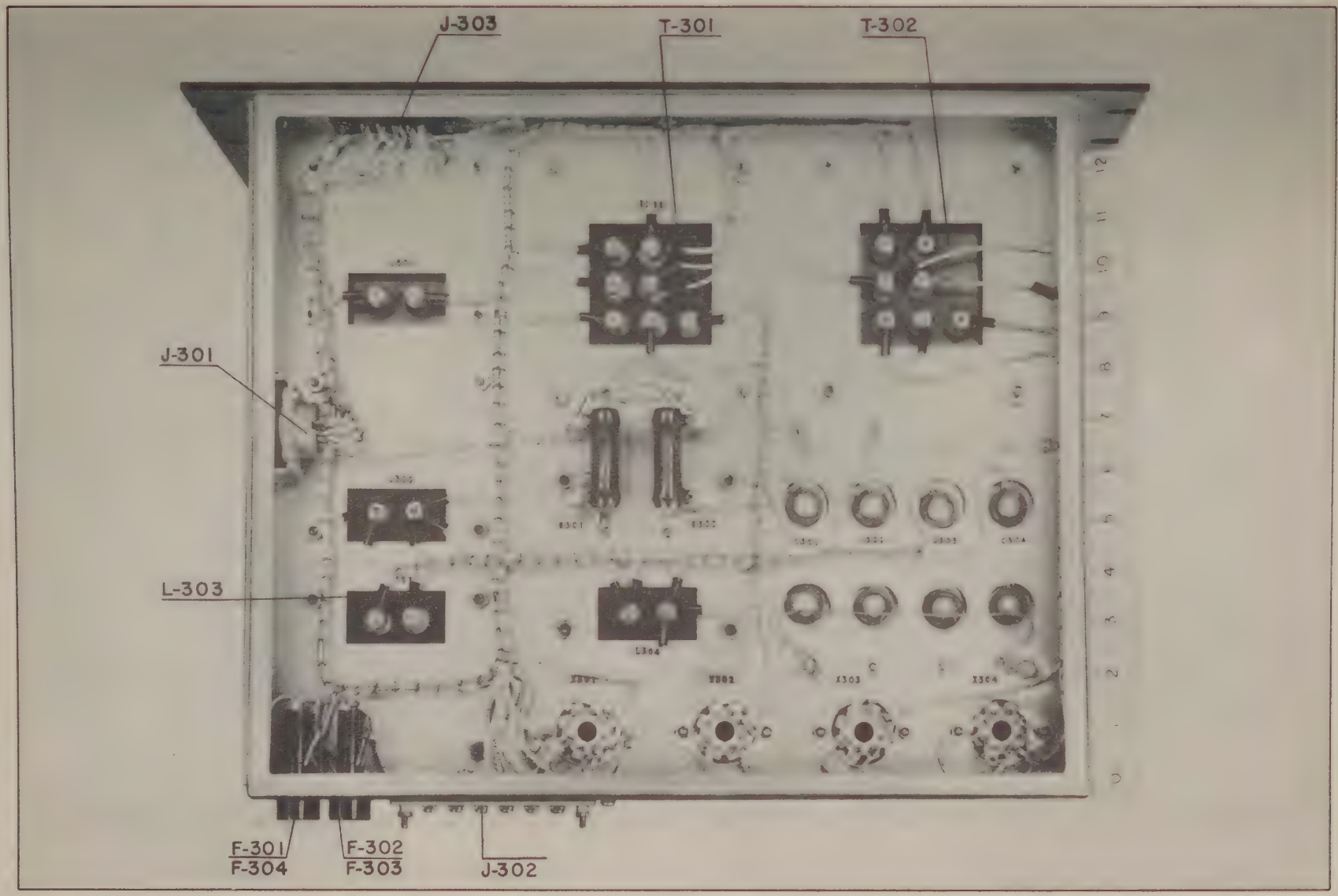


Figure 13, TYPE CIA-20188 H-V RECTIFIER UNIT, BOTTOM VIEW

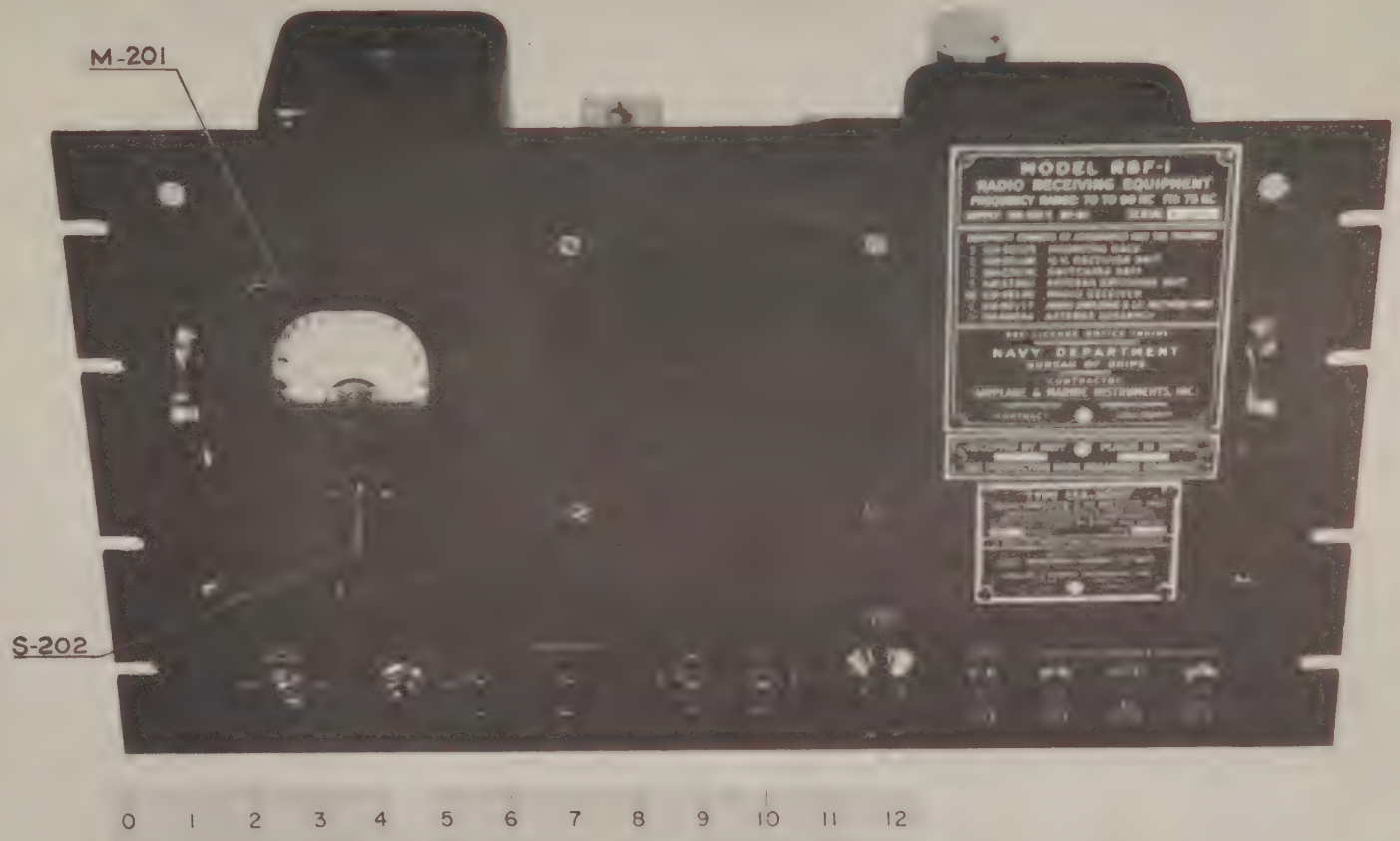


Figure 14, TYPE CIA-50117 AUDIO AMPLIFIER AND L-V RECTIFIER UNIT, FRONT VIEW

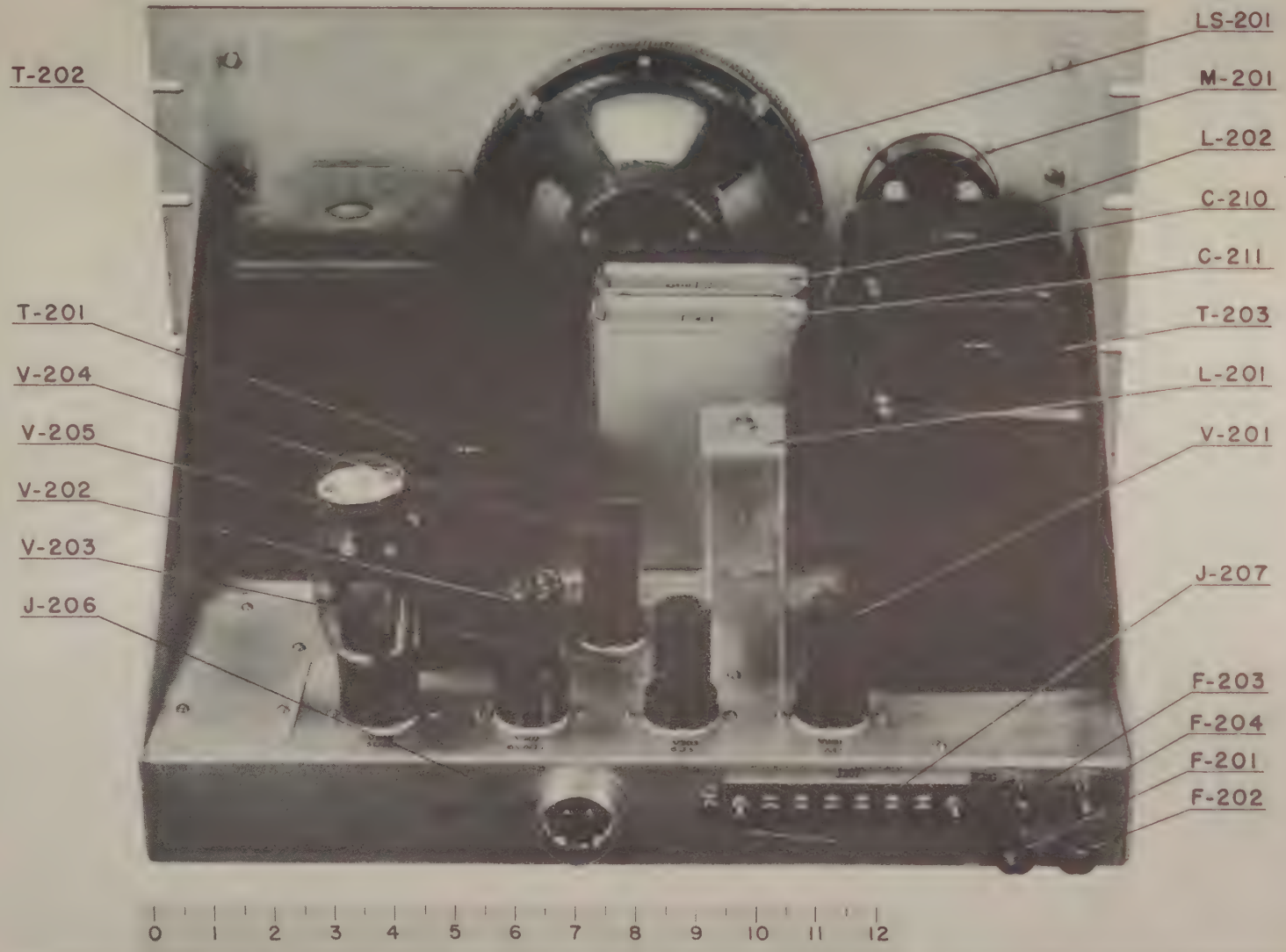


Figure 15, TYPE CIA-50117 AUDIO AMPLIFIER AND L-V RECTIFIER UNIT, TOP VIEW

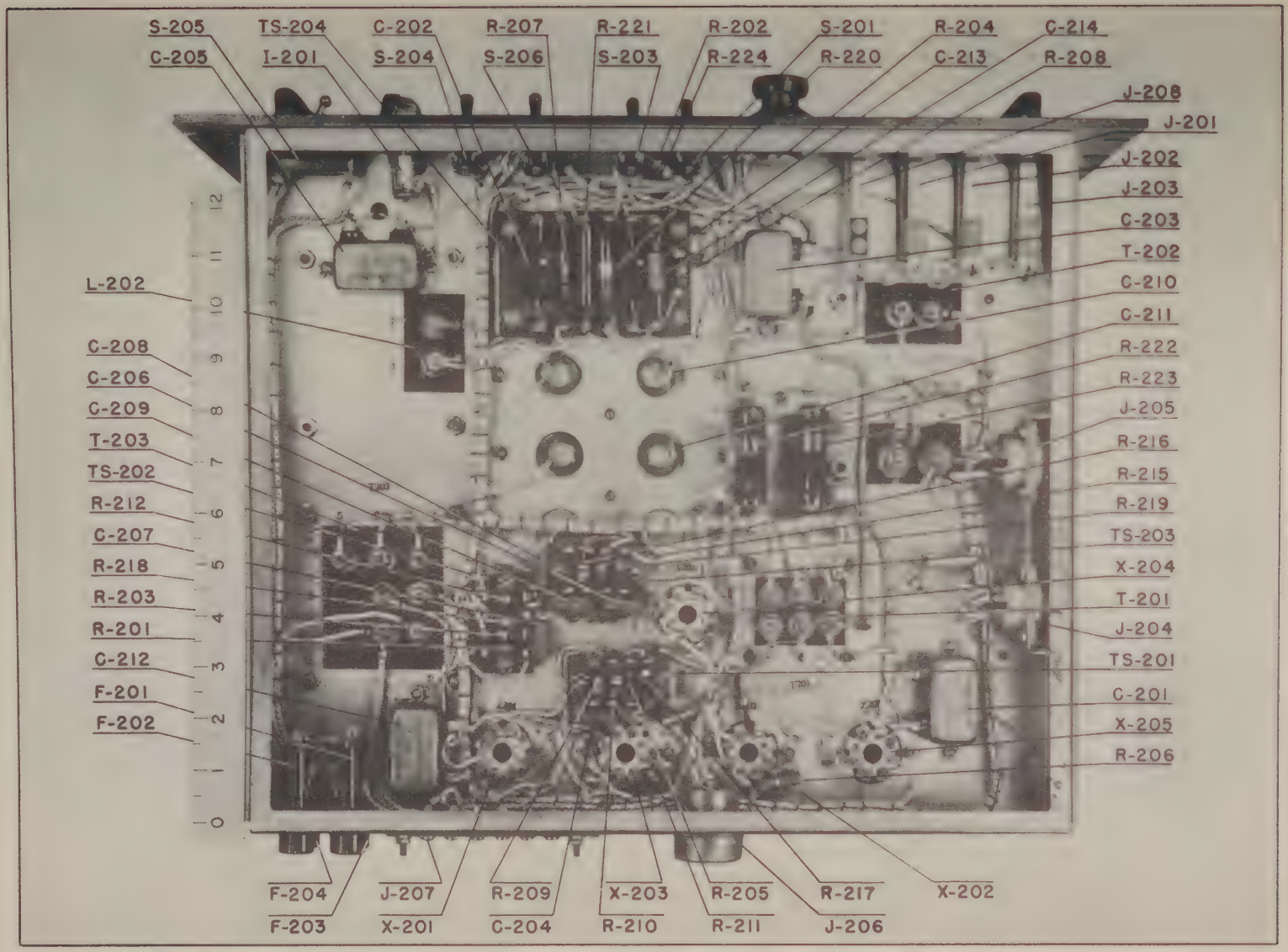


Figure 16, TYPE CIA-50117 AUDIO AMPLIFIER AND L-V RECTIFIER UNIT, BOTTOM VIEW

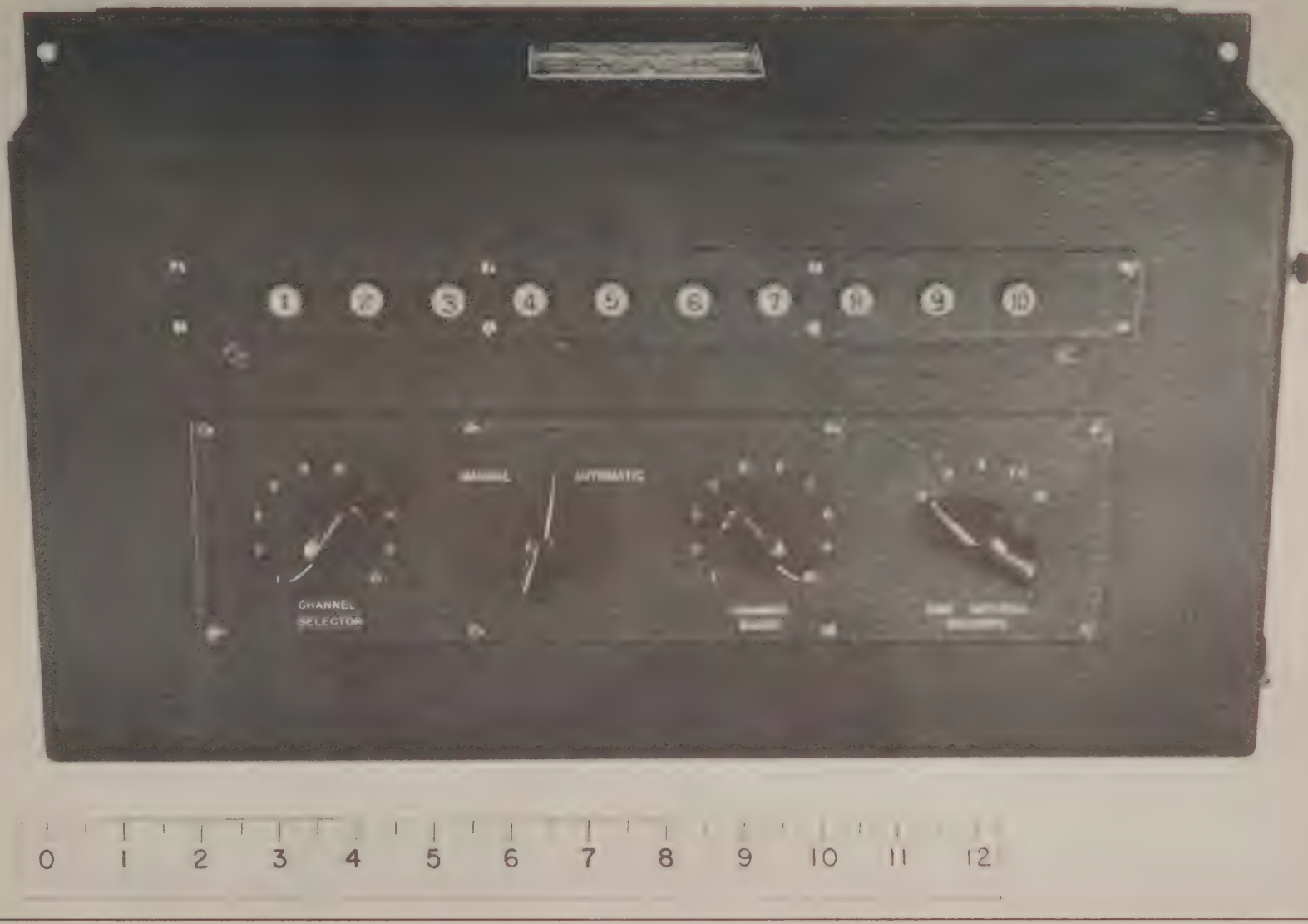


Figure 17, TYPE CIA-23318 SWITCHING UNIT, FRONT VIEW

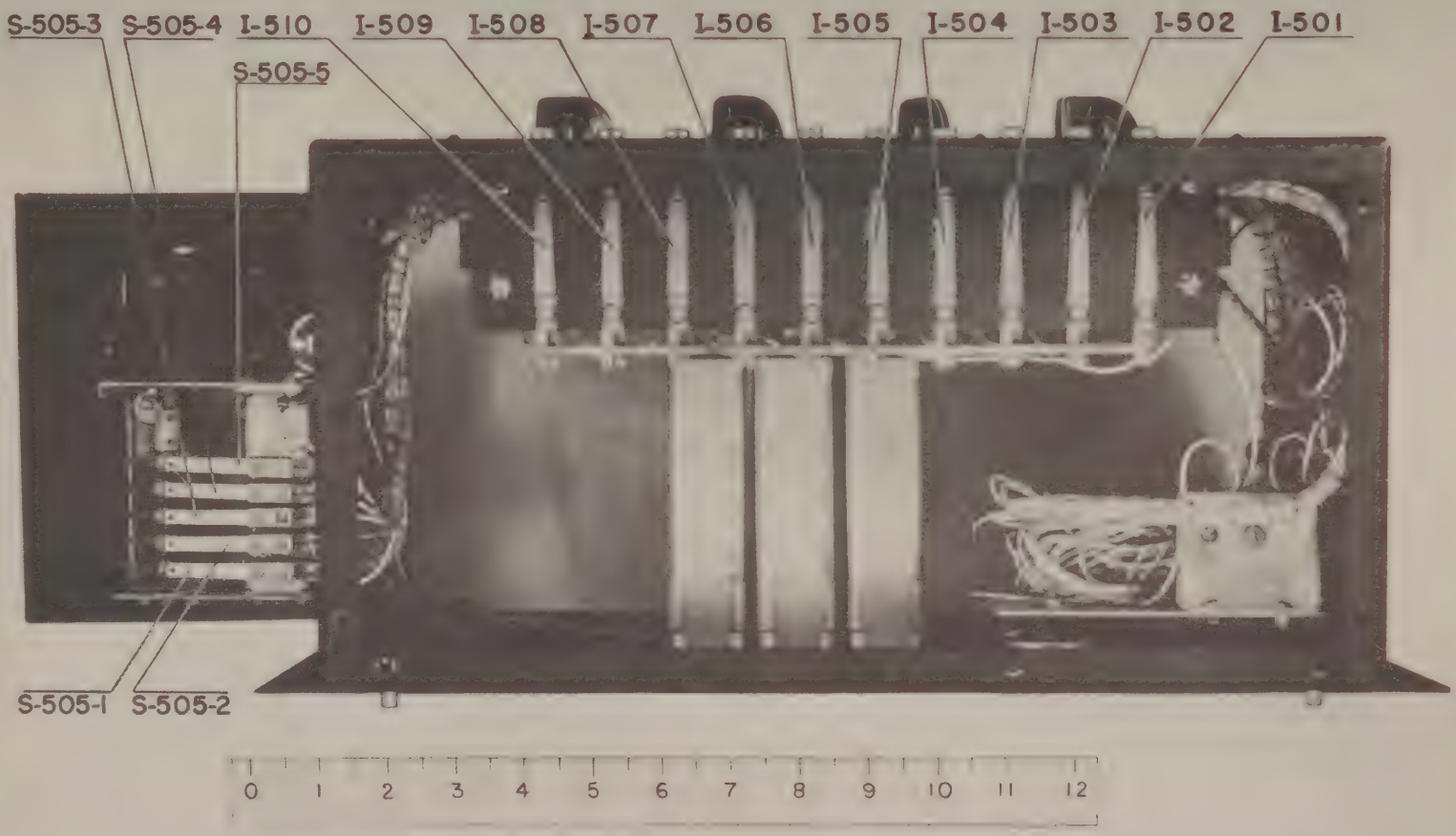


Figure 18, TYPE CIA-23318 SWITCHING UNIT—
COVER REMOVED, MOTOR DOOR OPEN, TOP VIEW

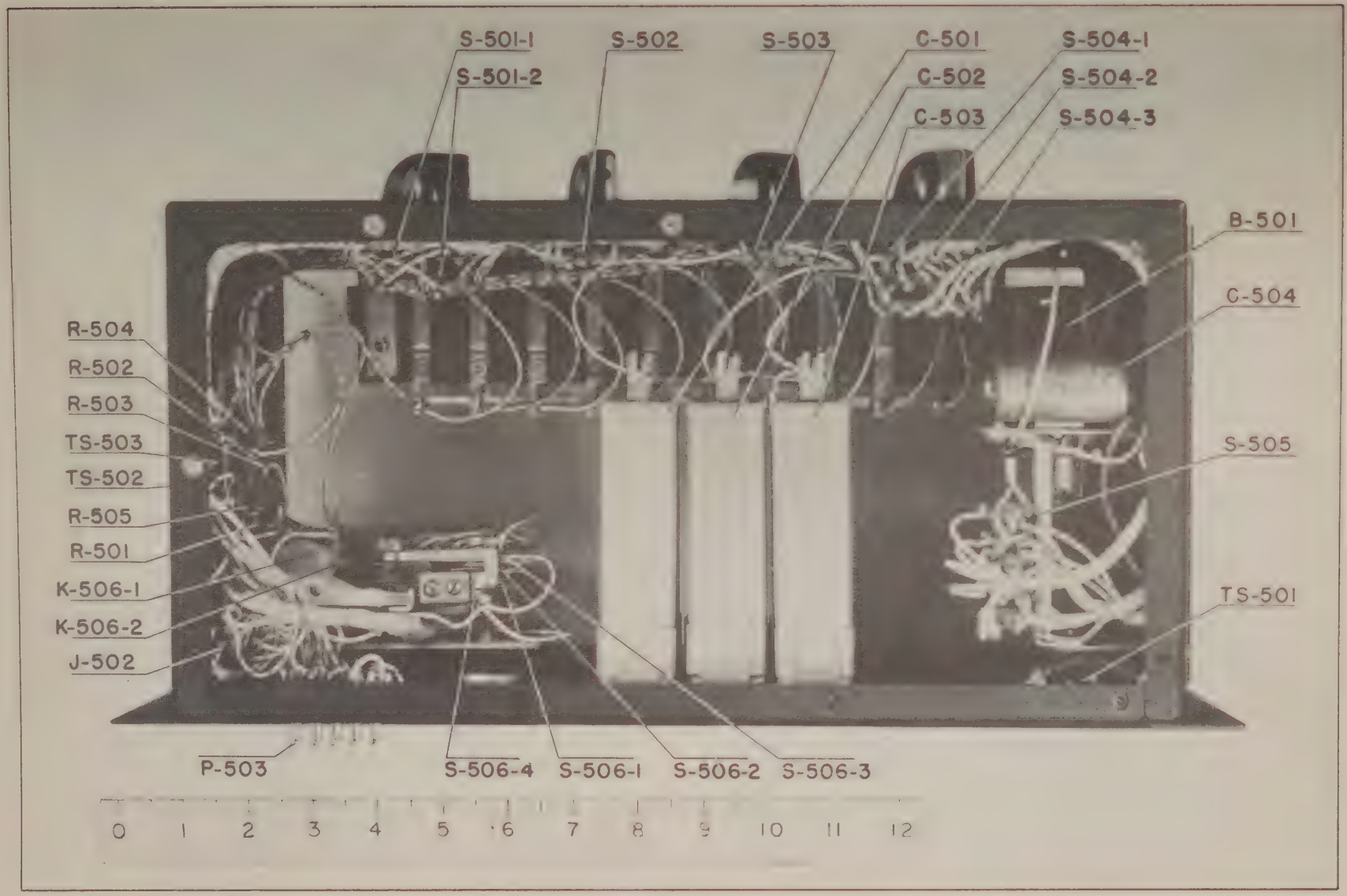
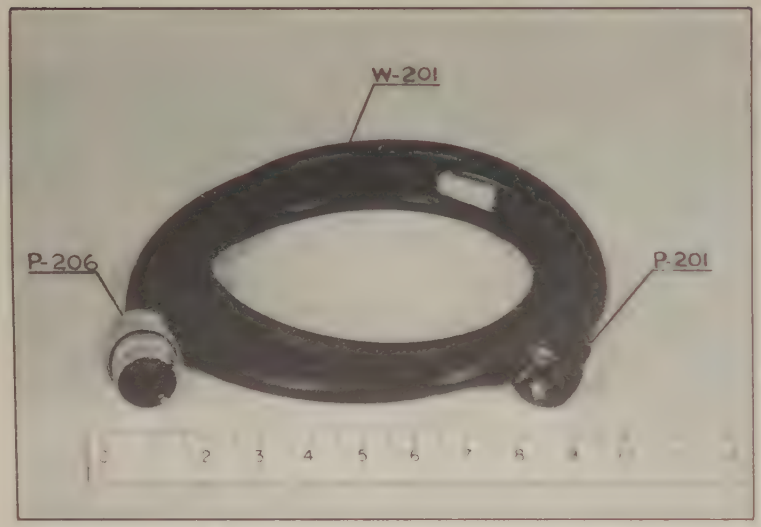
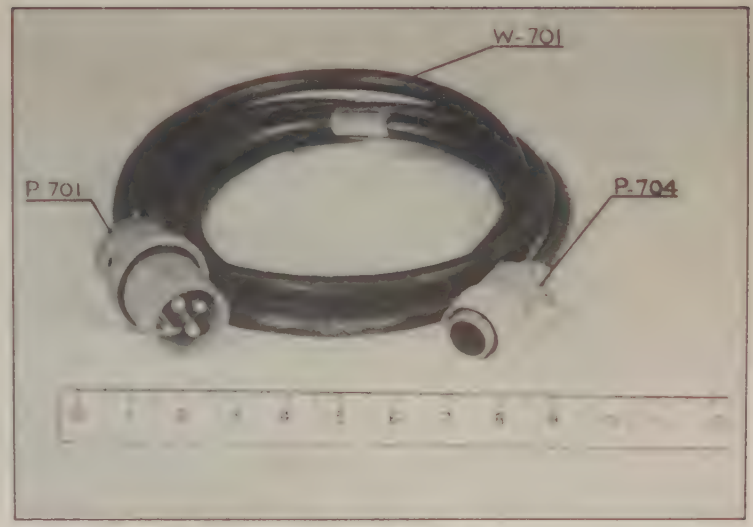


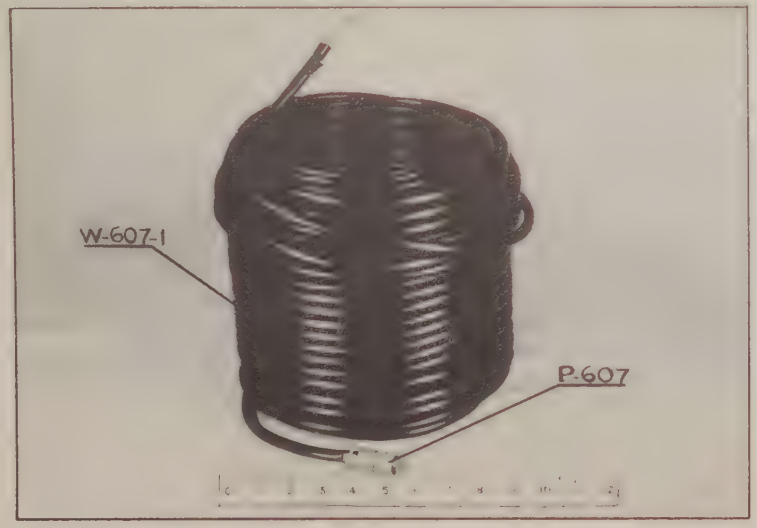
Figure 19, TYPE CIA-23318 SWITCHING UNIT—
COVER REMOVED, MOTOR DOOR CLOSED, BOTTOM VIEW



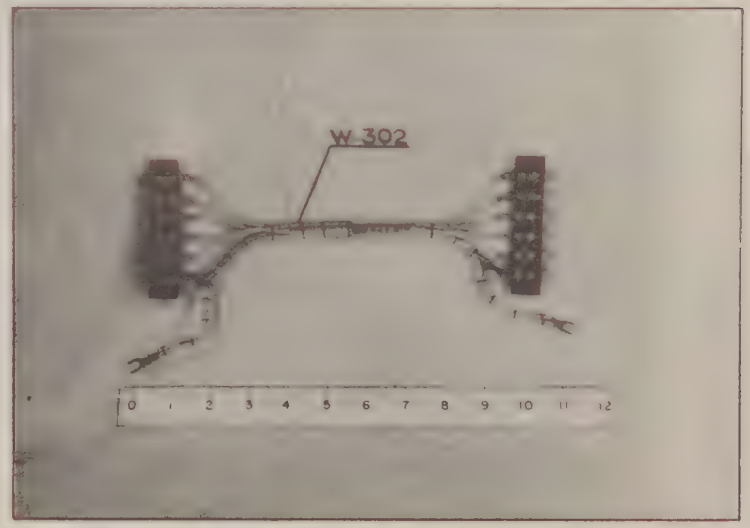
TYPE CIA-62095 POWER SOURCE CABLE;



TYPE CIA-62099 RECEIVER TEST CABLE:



TYPE CIA-62094 ANTENNA CONNECTING CABLE;



TYPE CIA-62096 POWER SUPPLY INTERCONNECTING CABLE

Figure 20

Figure 21, MODEL RBF-1 RADIO RECEIVING EQUIPMENT, SPARE PARTS BOX, PACKED

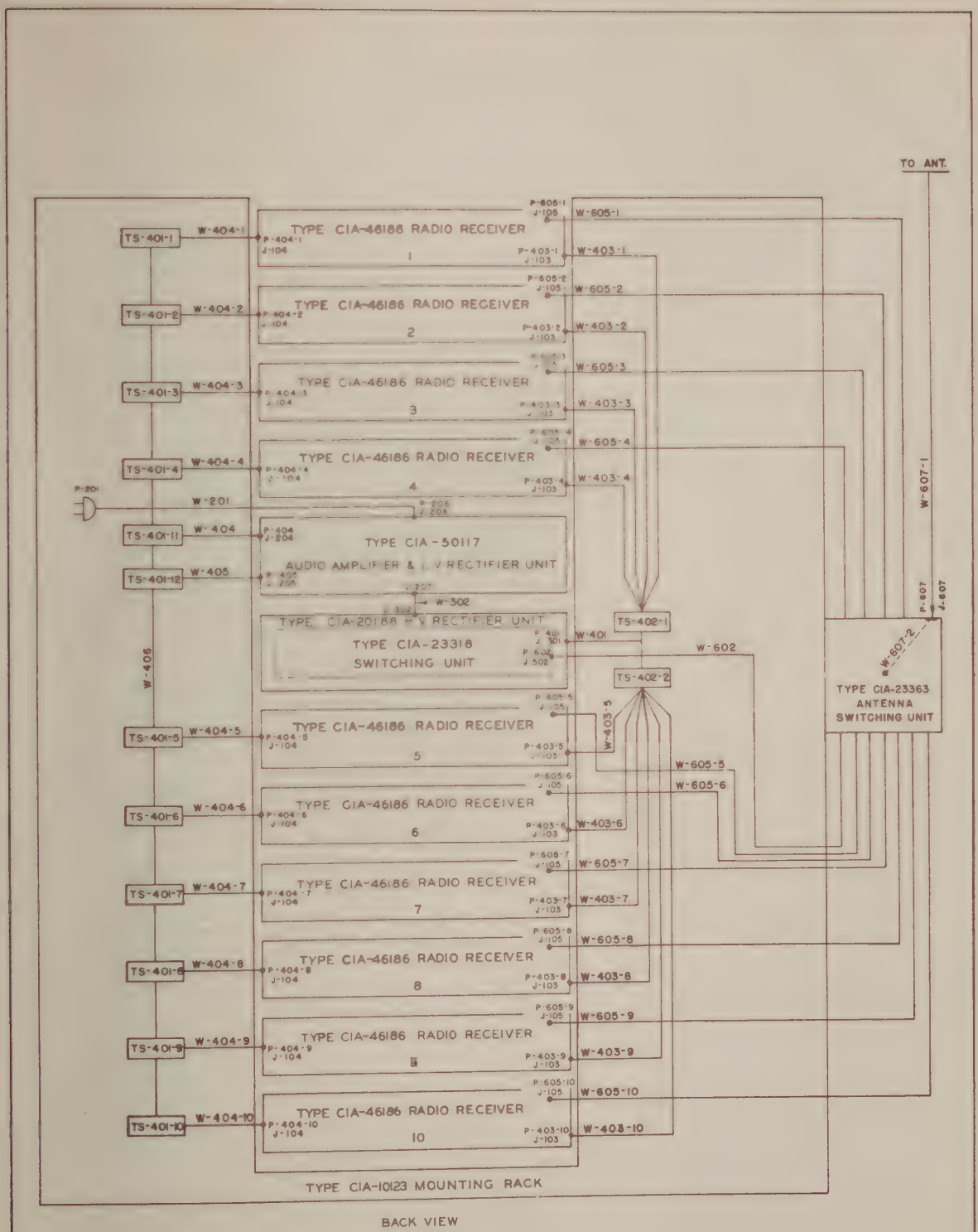
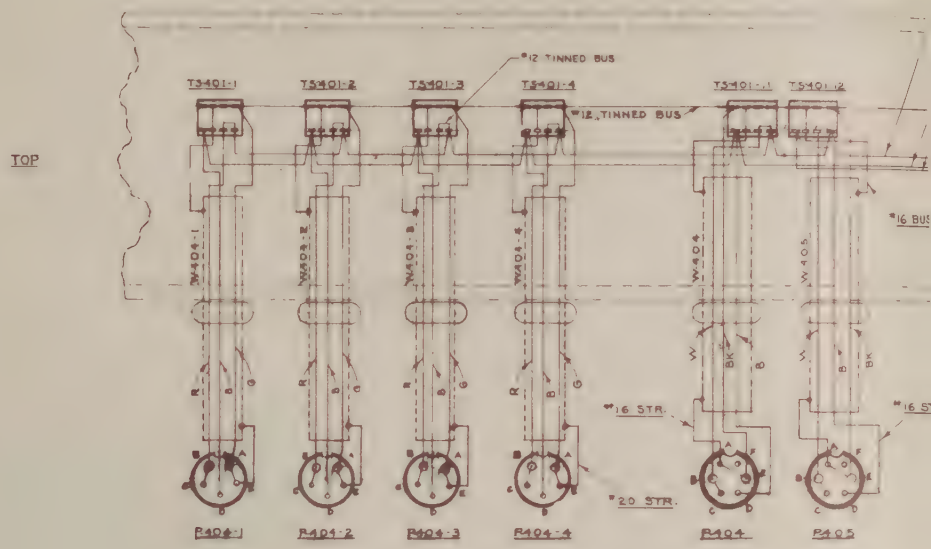
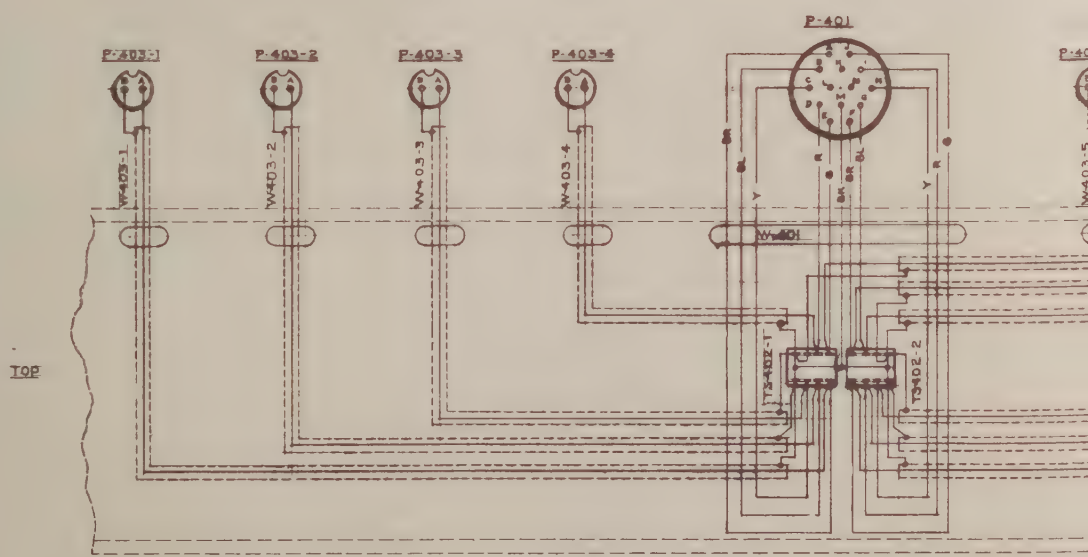


Figure 22, MODEL RBF-1 RADIO RECEIVING EQUIPMENT, INTERCONNECTING DIAGRAM

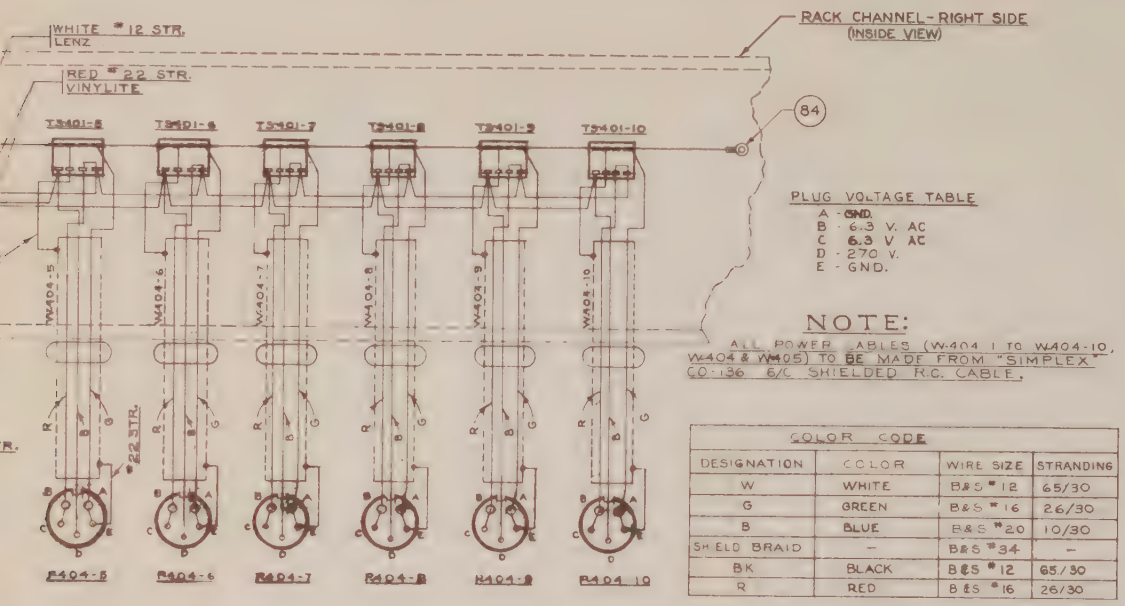


RACK CABLES - POWER
WIRING DIAGRAM



RACK CABLES - AUDIO DISTRIBUTION
WIRING DIAGRAM

Figure 23, TYPE CIA-10123 MOU



PLUG VOLTAGE TABLE

A - GND.
B - 6.3 V. AC
C - 6.3 V. AC
D - 270 V.
E - GND.

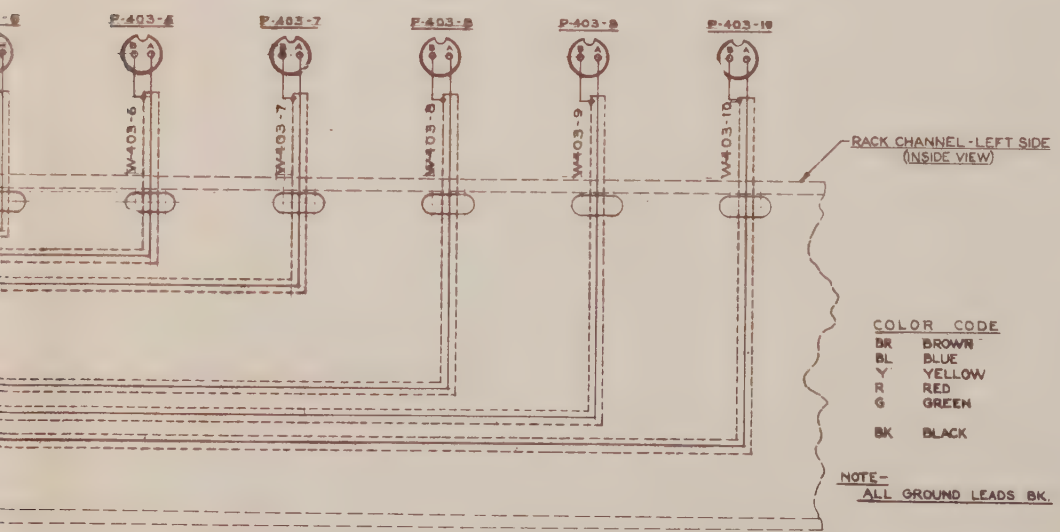
NOTE:

ALL POWER CABLES (W-404-1 TO W-404-10, W-404 & W405) TO BE MADE FROM "SIMPLEX" CO-136 6/C SHIELDED R.C. CABLE.

COLOR CODE			
DESIGNATION	COLOR	WIRE SIZE	STRANDING
W	WHITE	B&S #12	65/30
G	GREEN	B&S #16	26/30
B	BLUE	B&S #20	10/30
SHIELD BRAID	–	B&S #34	–
BK	BLACK	B&S #12	65/30
R	RED	B&S #16	26/30

REFERENCE: INTERCONNECTING DIAGRAM
SEE DW'G. D5569.1
SEE DWG. D5495.1 FOR ASSEMBLY

D5495.7



COLOR CODE

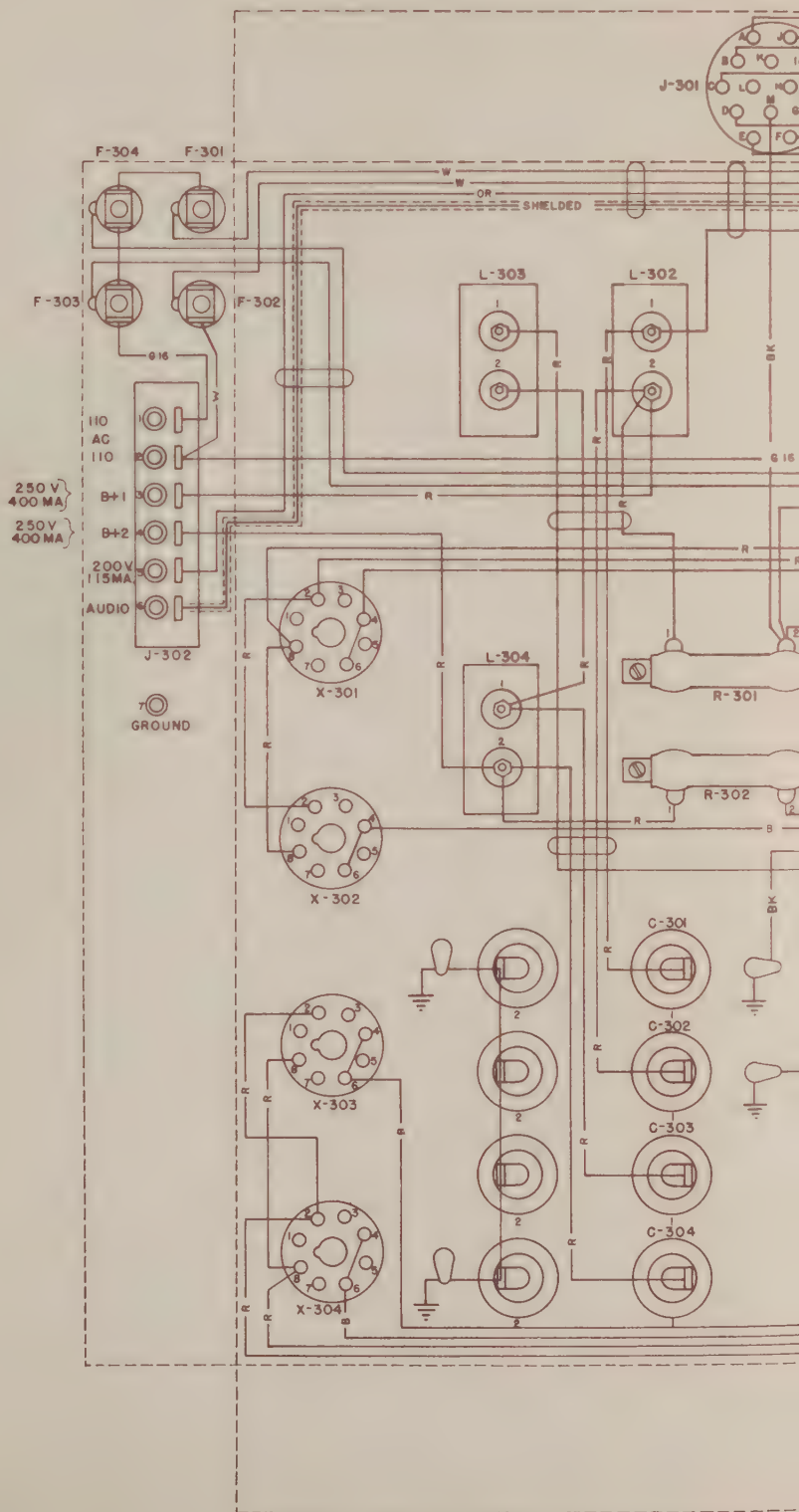
BR	BROWN
BL	BLUE
Y	YELLOW
R	RED
G	GREEN
BK	BLACK

NOTE-
ALL GROUND LEADS BK.

REFERENCE: INTERCONNECTING DIAGRAM
SEE DW'G. D5569.1
SEE DWG. D5495.1 FOR ASSEMBLY

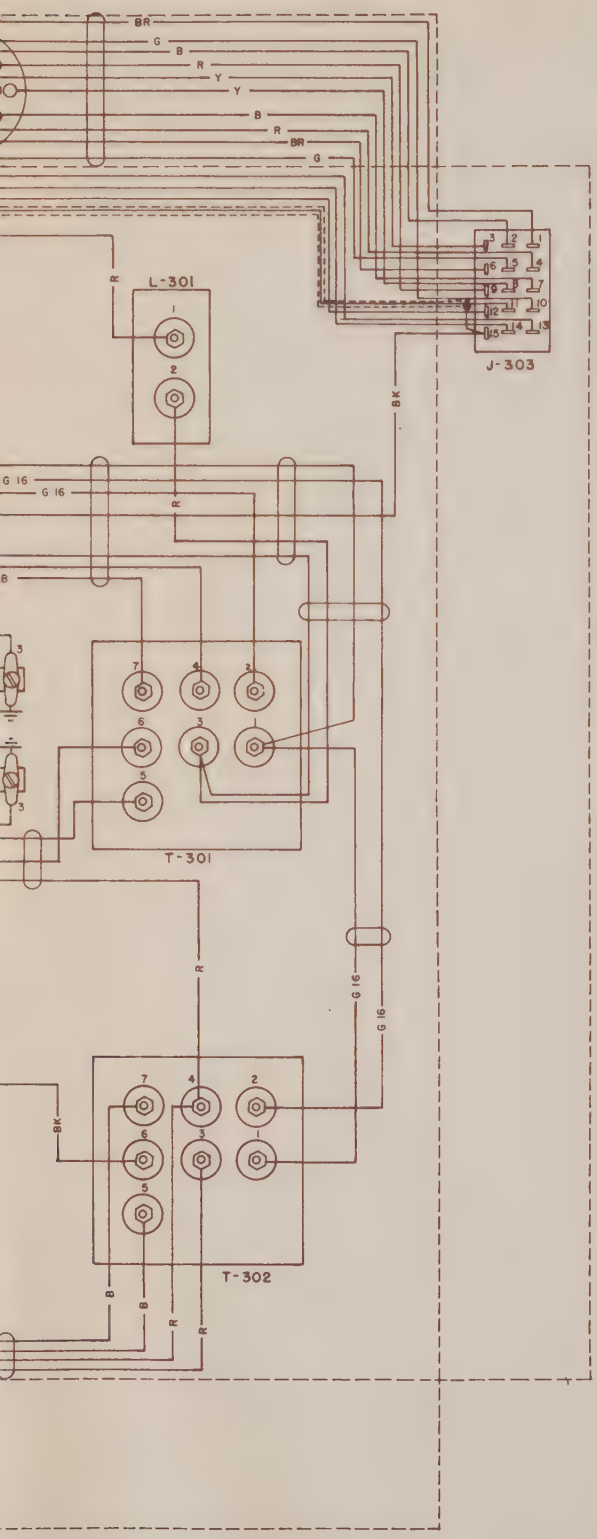
D5495.7

TING RACK, WIRING DIAGRAM



COLOR CODE		
BK	BLACK	B&S 22
BR	BROWN	" "
R	RED	" "
OR	ORANGE	" "
Y	YELLOW	" "
G	GREEN	" "
B	BLUE	" "
W	WHITE	" "
G16	GREEN	" 16

Figure 24, TYPE CIA-20188 H.V. REC



WIRING INDEX			
LEAD	COLOR	LENGTH	WIRE
C-301-1 - L-302-1	R	12	B&S 22
C-302-1 - L-302-2	R	13	" "
C-303-1 - L-304-1	R	9 1/2	" "
C-304-1 - L-304-2	R	10 1/2	" "
GROUND - C-301-2			
C-301-2 - C-304-2 INC.	—	7 3/4	BUS 16
C-304 2 - GROUND			
F-301 - F-304	—	1 1/2	" "
F-301 - J-303-13	W	18 1/2	B&S 22
F-302 - J-302-2	W	5 1/2	" "
F-302 - J-303-14	W	19	" "
F-303 - F-304	—	1 1/2	BUS 16
F-304 - T-302-2	G16	27	B&S 16
F-303 - J-302-1	G16	5 1/2	" "
F-303 - T-301-2	G16	18	" "
J-301-A - J-303-1	BR	10 1/2	" 22
J-301-B - J-303-2	B	10 1/2	" "
J-301-C - J-303-3	Y	10 1/2	" "
J-301-D - J-303-4	R	10	" "
J-301-E - J-303-5	G	10	" "
J-301-F - J-303-6	BR	10	" "
J-301-G - J-303-7	B	10	" "
J-301-H - J-303-8	Y	10 1/2	" "
J-301-I - J-303-9	R	11	" "
J-301-J - J-303-10	G	11	" "
J-301-M - R-301-2	BK	6 1/2	" "
J-302-5 - J-303-12	OR	22	" "
J-302-6 - J-303-11	—	23	LENZ 1102
J-302-2 - T-301-1	G16	18 1/2	B&S 16
J-302-3 - L-302-2	R	9	" 22
J-302-4 - L-304-2	R	8	" "
J-302-7 - GROUND	—	2	BUS 16
J-303-15 - R-301-2	BK	10	B&S 22
L-301-1 - L-302-1	R	6	" "
L-301-2 - T-301-3	R	13 1/2	" "
L-302-2 - R-301-1	R	7	" "
L-303-1 - T-302-4	R	17	" "
L-303-2 - L-304-1	R	6 1/2	" "
L-304-2 - R-302-1	R	6	" "
R-301-2 - R-301-3	—	2	BUS 16
R-302-2 - R-302-3	—	2	" "
T-301-7 - X-301-4	B	11 1/2	B&S 22
T-301-4 - X-301-2	R	13 3/4	" "
T-301-6 - GROUND	BK	5	" "
T-301-3 - X-301-8	R	23	" "
T-301-1 - T-302-1	G16	10 1/4	" 16
T-301-5 - X-302-4	B	11	" 22
T-302-7 - X-303-6	B	16	" "
T-302-4 - X-304-8	R	16 1/2	" "
T-302-6 - GROUND	BK	3 1/2	" "
T-302-3 - X-304-2	R	17	" "
T-302-5 - X-304-6	B	11	" "
X-301-2 - X-302-2	R	5 1/2	" "
X-301-4 - X-301-6	—	3/4	BUS 16
X-301-8 - X-302-8	R	5 1/2	B&S 22
X-303-2 - X-304-2	R	5 1/2	" "
X-303-8 - X-304-8	R	5	" "
X-304-4 - X-304-6	—	3/4	BUS 16
X-302-4 - X-302-6	—	3/4	" "
X-303-4 - X-303-6	—	3/4	" "

NOTE: BUS #16 A.W.G. TINNED - HARD DRAWN

TIFIER UNIT, WIRING DIAGRAM

4

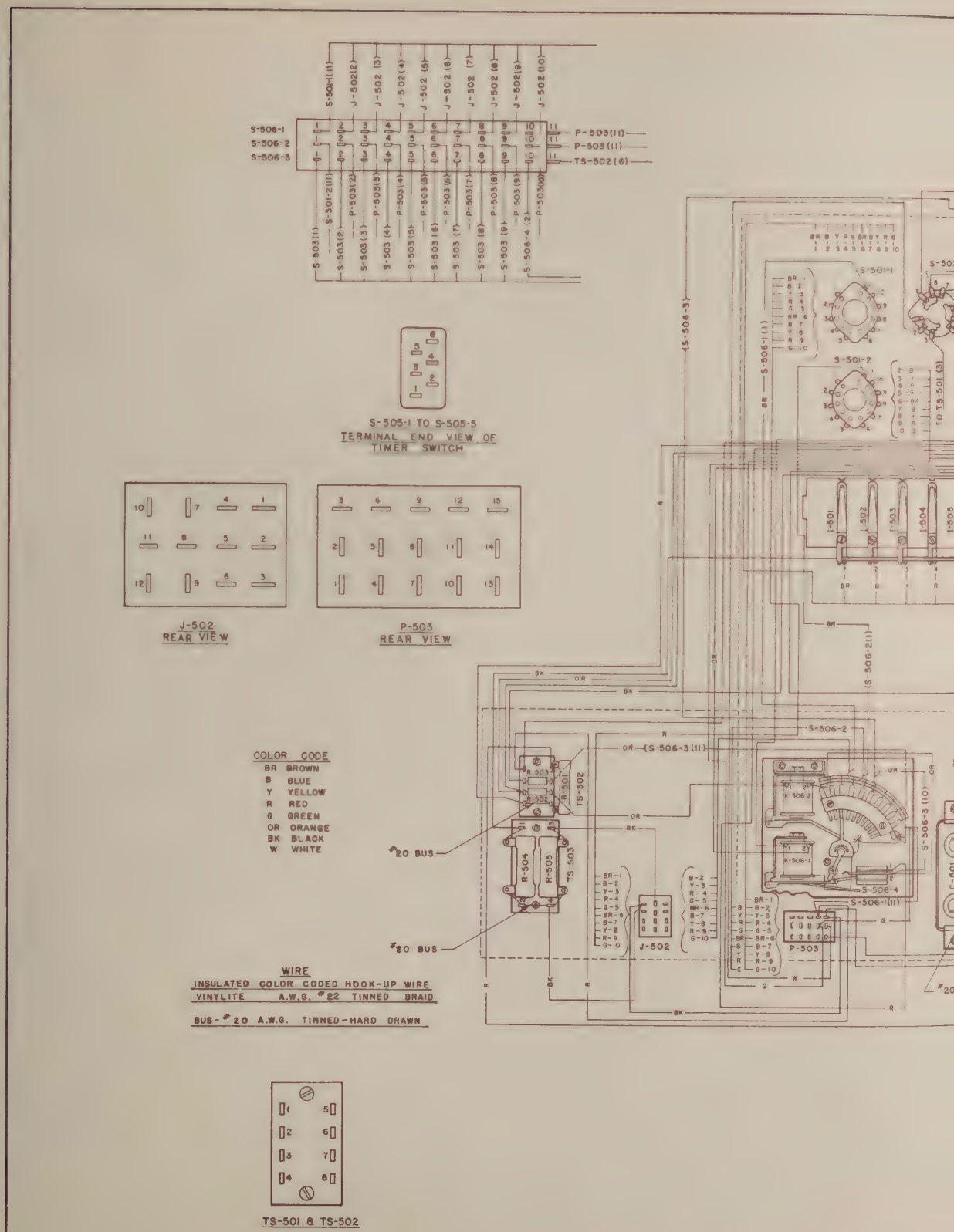
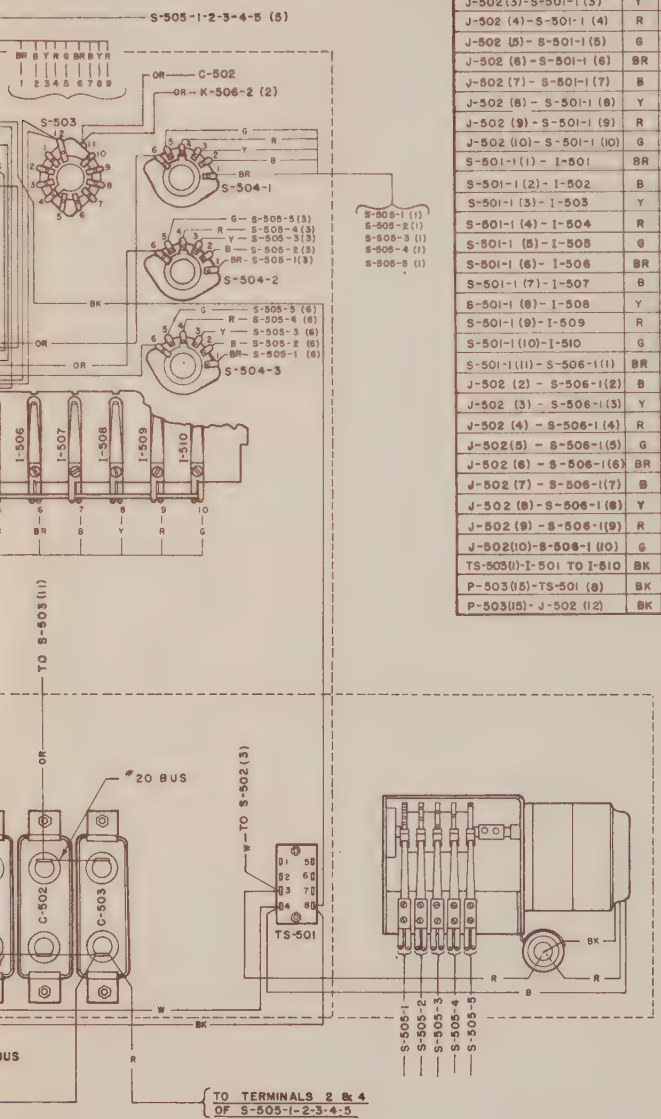


Figure 25, TYPE CIA-23318 SWIT



LEAD	COLOR	L'GTH	CABLE NO.	WIRE NO.
J-502 (1)-S-501-1 (1)	BR	18	1	1
J-502 (2)-S-501-1 (2)	B	18	1	2
J-502 (3)-S-501-1 (3)	Y	18	1	3
J-502 (4)-S-501-1 (4)	R	18	1	4
J-502 (5)- S-501-1 (5)	G	18	1	5
J-502 (6)-S-501-1 (6)	BR	18	1	6
J-502 (7)- S-501-1 (7)	B	18	1	7
J-502 (8)- S-501-1 (8)	Y	18	1	8
J-502 (9)-S-501-1 (9)	R	18	1	9
J-502 (10)- S-501-1 (10)	G	18	1	10
S-501-1 (1)- I-501	BR	8 3/4	2	11
S-501-1 (2)- I-502	B	9 1/4	2	12
S-501-1 (3)- I-503	Y	9 5/8	2	13
S-501-1 (4)- I-504	R	10 3/8	2	14
S-501-1 (5)- I-505	G	11	2	15
S-501-1 (6)- I-506	BR	13	2	16
S-501-1 (7)- I-507	B	14 5/8	2	17
S-501-1 (8)- I-508	Y	15 1/2	2	18
S-501-1 (9)- I-509	R	17 1/4	2	19
S-501-1 (10)-I-510	G	17 7/8	2	20
S-501-1 (11)- S-506-1 (1)	BR	18 7/8	4	21
J-502 (2)- S-506-1 (2)	B	10	3	22
J-502 (3)- S-506-1 (3)	Y	10	3	23
J-502 (4)- S-506-1 (4)	R	10	3	24
J-502 (5)- S-506-1 (5)	G	10	3	25
J-502 (6)- S-506-1 (6)	BR	10	3	26
J-502 (7)- S-506-1 (7)	B	10	3	27
J-502 (8)-S-506-1 (8)	Y	10	3	28
J-502 (9)- S-506-1 (9)	R	10	3	29
J-502 (10)-S-506-1 (10)	G	10	3	30
TS-503 (1)-I-501 TO I-510	BK	19 1/4	7	31
P-503 (15)-TS-501 (8)	BK	15 3/4	7	32
P-503 (15)- J-502 (12)	BK	6	—	33

LEAD	COLOR	L'GTH	CABLE NO.	WIRE NO.
P-503 (1)-S-501-2 (1)	BR	18	5	34
P-503 (2)-S-501-2 (2)	B	18	5	35
P-503 (3)-S-501-2 (3)	Y	18	5	36
P-503 (4)-S-501-2 (4)	R	18	5	37
P-503 (5)-S-501-2 (5)	G	18	5	38
P-503 (6)-S-501-2 (6)	BR	18	5	39
P-503 (7)-S-501-2 (7)	B	18	5	40
P-503 (8)-S-501-2 (8)	Y	18	5	41
P-503 (9)-S-501-2 (9)	R	18	5	42
P-503 (10)-S-501-2 (10)	G	18	5	43
S-501-2 (11)-S-506-2 (1)	BR	18 11/16	4	44
P-503 (2)-S-506-2 (2)	B	10	6	45
P-503 (3)-S-506-2 (3)	Y	10	6	46
P-503 (4)-S-506-2 (4)	R	10	6	47
P-503 (5)-S-506-2 (5)	G	10	6	48
P-503 (6)-S-506-2 (6)	BR	10	6	49
P-503 (7)-S-506-2 (7)	B	10	6	50
P-503 (8)-S-506-2 (8)	Y	10	6	51
P-503 (9)-S-506-2 (9)	R	10	6	52
P-503 (10)-S-506-2 (10)	G	10	6	53
P-503 (11)-S-506-2 (11)	G	10	6	54
P-503 (11)-S-504-3 (6)	G	26 1/2	7	55
P-503 (12)-TS-502 (1)	R	12	—	56
TS-502 (1)-S-502 (5)	R	21 3/4	7	57
P-503 (12)-S-506-1 (11)	R	10	6	58
P-503 (13)-TS-501 (4)	W	14	7	59
P-503 (14)-S-502 (2)	W	21 1/2	7	60
S-502 (3)-TS-501 (3)	W	32 1/2	7	61
S-502 (4)-S-506-4 (1)	R	22 1/2	7	62
S-506-4 (2)-K-506-2 (2)	OR	12	—	63
S-506-4 (2)-S-506-3 (10)	OR	4	—	64
K-506-2 (2)-S-503 (11)	OR	25 3/4	7	65
S-503 (12)-C-501	OR	6	—	66
S-503 (11)-C-502	OR	6	—	67
K-506-1 (2)-S-503 (12)	OR	21 1/4	7	68
C-503-TS-502 (5)	R	26 1/4	7	69
TS-502 (3)-S-502 (7)	OR	18 1/2	7	70
S-503 (1)-S-506-3 (1)	BR	22 5/8	4	71
S-503 (2)-S-506-3 (2)	B	22 1/2	4	72
S-503 (3)-S-506-3 (3)	Y	22 13/16	4	73
S-503 (4)-S-506-3 (4)	R	22 3/8	4	74
S-503 (5)-S-506-3 (5)	G	22 9/16	4	75
S-503 (6)-S-506-3 (6)	BR	24 5/8	4	76
S-503 (7)-S-506-3 (7)	B	25 1/8	4	77
S-503 (8)-S-506-3 (8)	Y	25 3/8	4	78
S-503 (9)-S-506-3 (9)	R	26 1/16	4	79
K-506-1 (1)-S-504-1 (6)	OR	25	7	80
K-506-2 (1)-TS-502 (7)	OR	13	—	81
S-504-2 (6)-TS-502 (3)	OR	25 3/4	7	82
S-502 (8)-TS-501 (8)	BK	21	7	83
S-506-3 (11)-TS-502 (6)	OR	12 3/4	4	84
TS-502 (2)-S-502 (8)	BK	18 1/2	7	85
S-505-1 (5)-S-502 (9)	BK	20 1/4	7	86
S-504-3 (1)-S-505-1 (6)	BR	13 1/2	10	87
S-504-3 (2)-S-505-2 (6)	B	13 1/2	10	88
S-504-3 (3)-S-505-3 (6)	Y	13 1/2	10	89
S-504-3 (4)-S-505-4 (6)	R	13 1/2	10	90
S-504-3 (5)-S-505-5 (6)	G	13 1/2	10	91
S-504-2 (1)-S-505-1 (3)	BR	13 1/2	9	92
S-504-2 (2)-S-505-2 (3)	B	13 1/2	9	93
S-504-2 (3)-S-505-3 (3)	Y	13 1/2	9	94
S-504-2 (4)-S-505-4 (3)	R	13 1/2	9	95
S-504-2 (5)-S-505-5 (3)	G	13 1/2	9	96
S-504-1 (1)-S-505-1 (1)	BR	13 1/2	8	97
S-504-1 (2)-S-505-2 (1)	B	13 1/2	8	98
S-504-1 (3)-S-505-3 (1)	Y	13 1/2	8	99
S-504-1 (4)-S-505-4 (1)	R	13 1/2	8	100
S-504-1 (5)-S-505-5 (1)	G	13 1/2	8	101
TS-502 (4)-S-502 (6)	R	21 1/2	7	102
J-502 (11)-TS-503 (3)	BK	6	–	103
J-502 (12)-TS-503 (4)	BK	4	–	104
C-503-S-505 (2) & (4)	R	19	–	105

CHING UNIT, WIRING DIAGRAM

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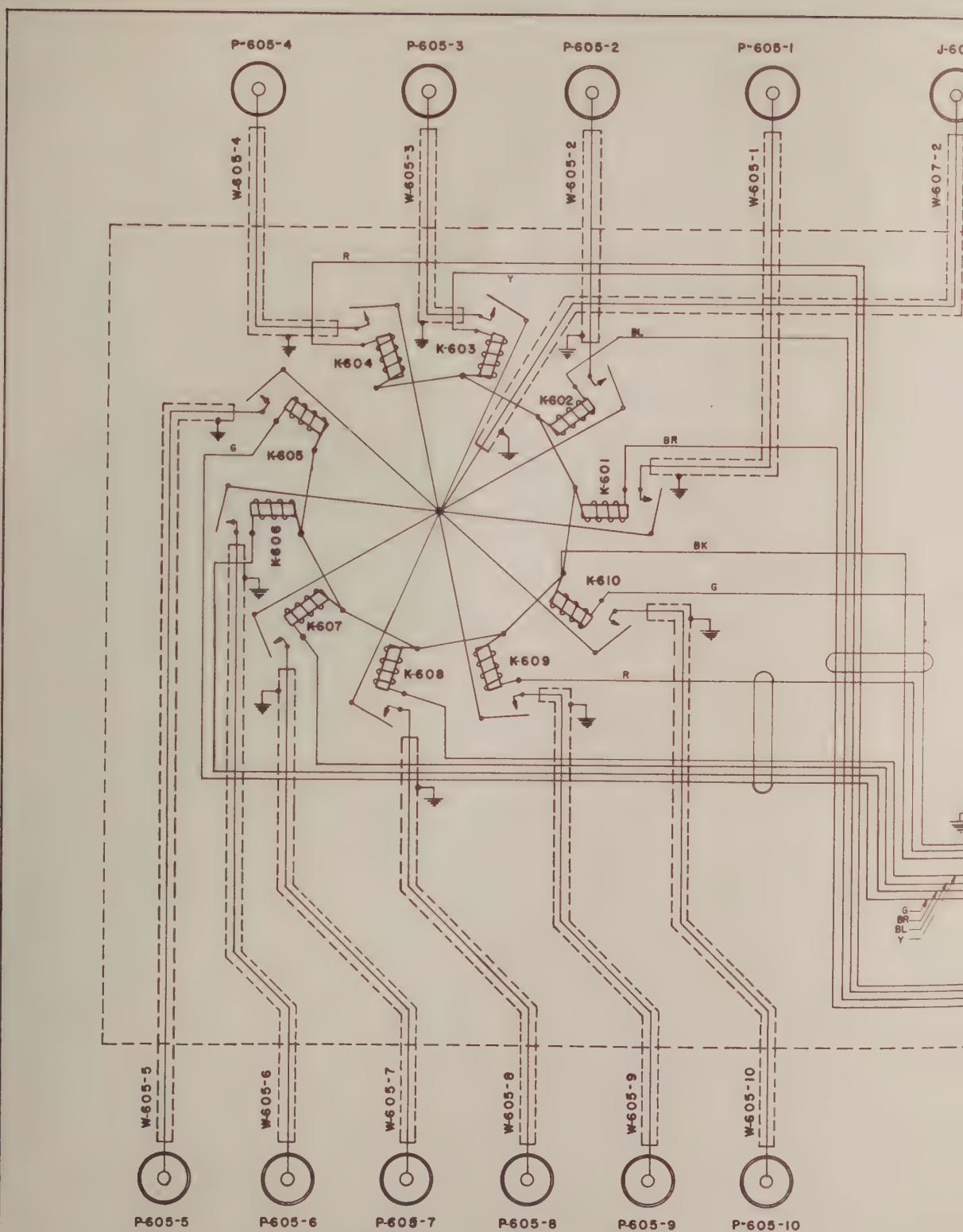
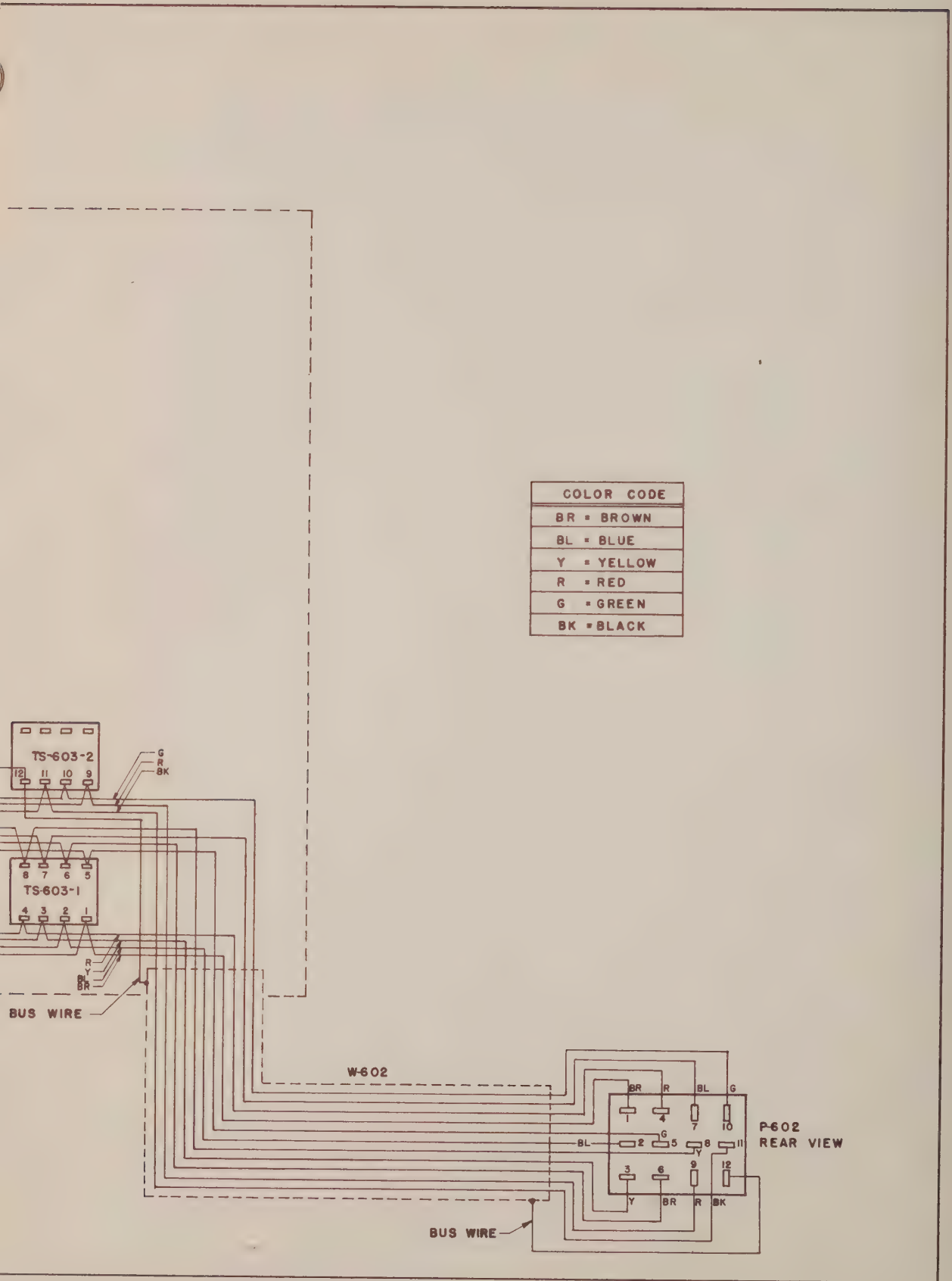


Figure 26, TYPE CIA-23363 ANTENNA



WITCHING UNIT, WIRING DIAGRAM

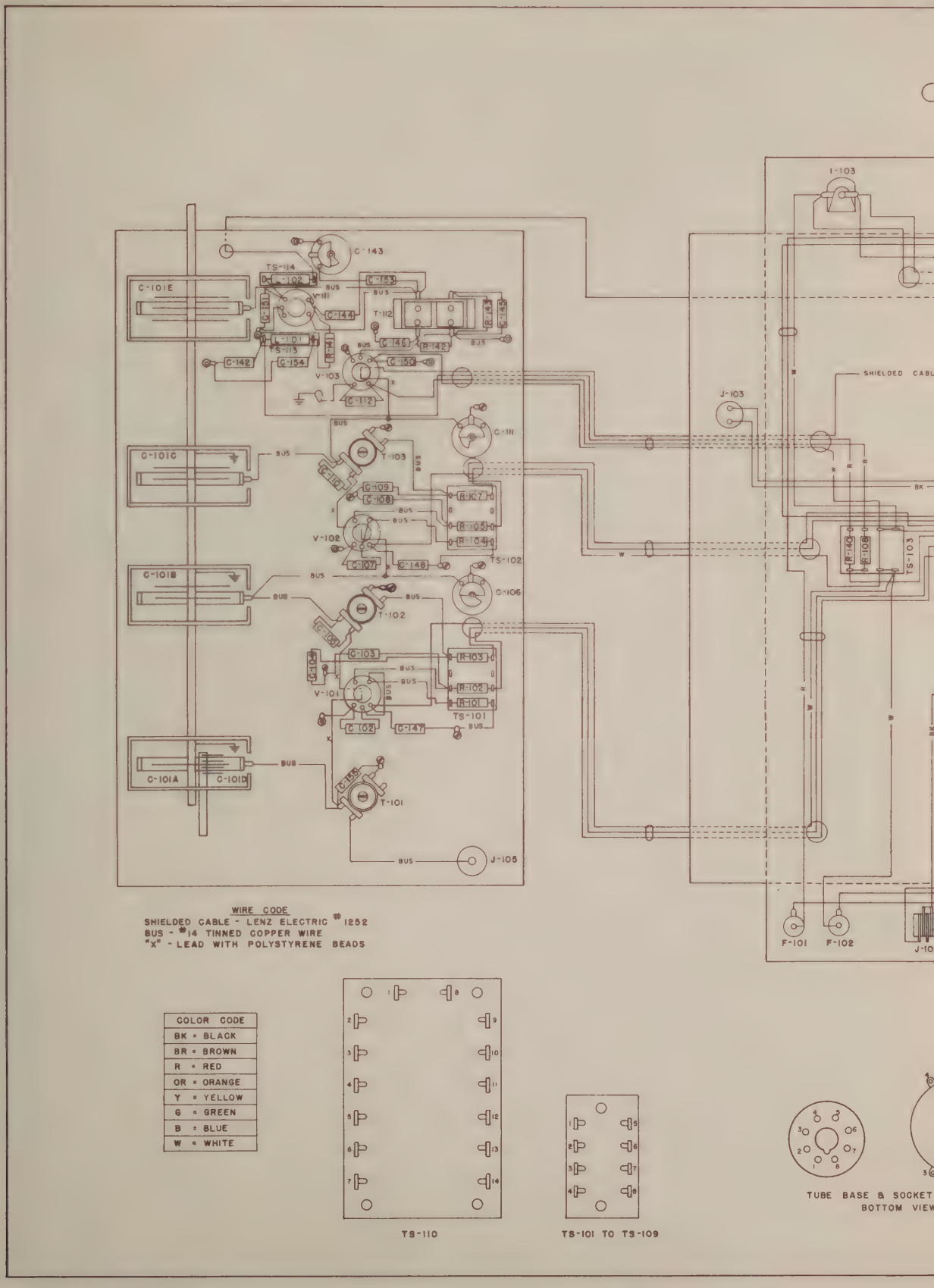
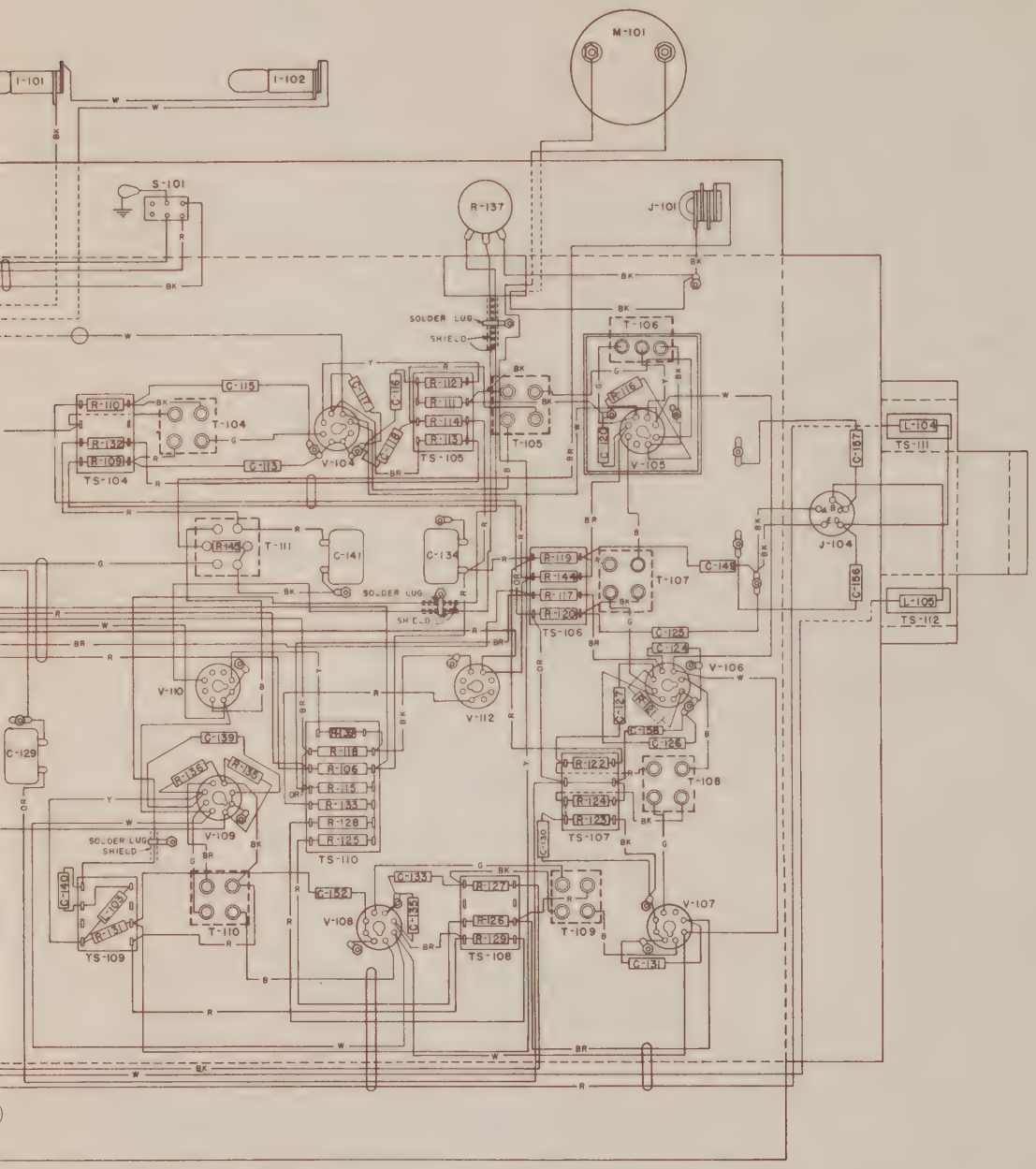


Figure 27, TYPE CIA-46186 RADIO



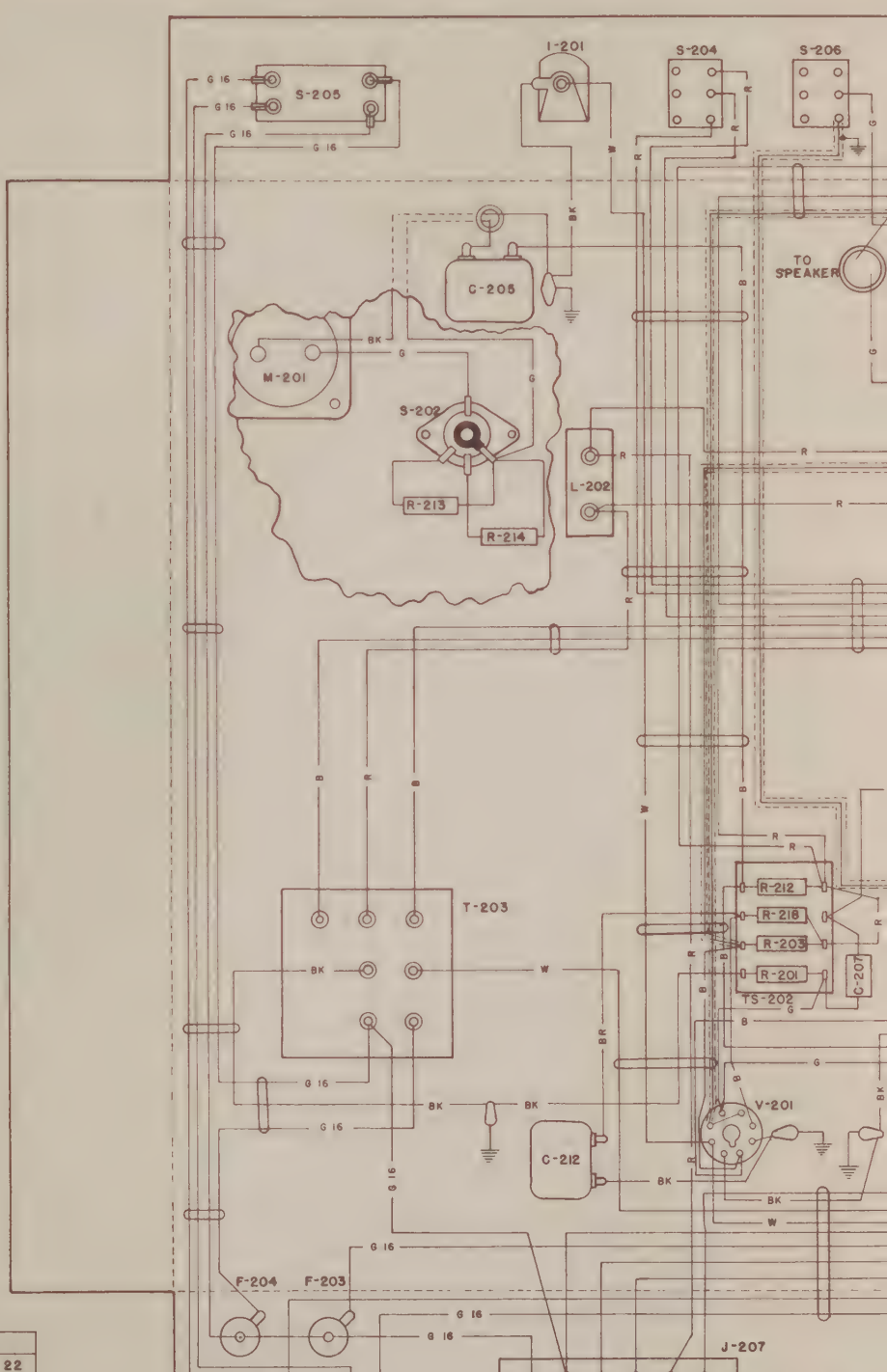
BACK EDGE

DIAGRAMS

PIN	TUBE CONNECTIONS							
	6AC7	6H6	6J5	6SA7	6SG7	954*	955	VR-150-30
1	SHIELD	SHIELD	SHIELD	SUPPRESSOR	SHIELD	HEATER	HEATER	—
2	HEATER	HEATER	HEATER	HEATER	HEATER	SCREEN	PLATE	CATHODE
3	SUPPRESSOR	2 ND. D. PLATE	PLATE	PLATE	CATHODE	SUPPRESSOR	GRID	JUMPER
4	GRID	2 ND. D. CATHODE	—	SCREEN	GRID	HEATER	HEATER	—
5	CATHODE	1 ST. D. PLATE	GRID	OSC. GRID	CATHODE	CATHODE	CATHODE	ANODE
6	SCREEN	—	—	CATHODE	SCREEN	—	—	—
7	HEATER	HEATER	HEATER	HEATER	HEATER	—	—	JUMPER
8	PLATE	1 ST. D. CATHODE	CATHODE	GRID	PLATE	—	—	—
CAP	—	—	—	—	—	PLATE	—	—

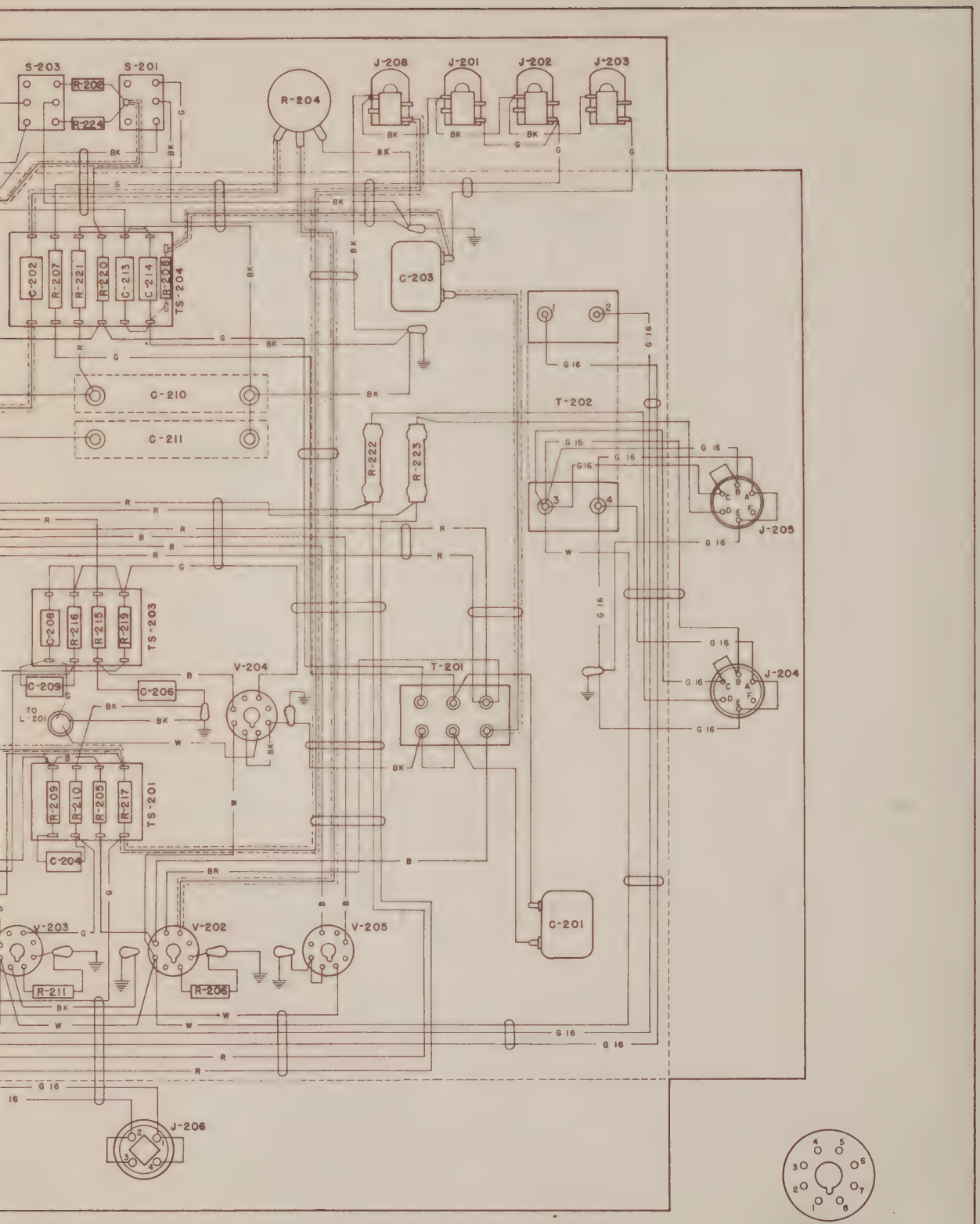
*CAP ON THE BOTTOM OF THIS TUBE IS THE CONTROL GRID.

RECEIVER, WIRING DIAGRAM



COLOR CODE		
W	WHITE	B&S 22
BK	BLACK	" "
Y	YELLOW	" "
R	RED	" "
G	GREEN	" "
B	BLUE	" "
BR	BROWN	" "
G 16	GREEN	" 16
SHIELDED COND. - LENZ #1102		

Figure 28, TYPE CIA-50117 AUDIO AMPLIFIER A



ND L.V. RECTIFIER UNIT, WIRING DIAGRAM

8

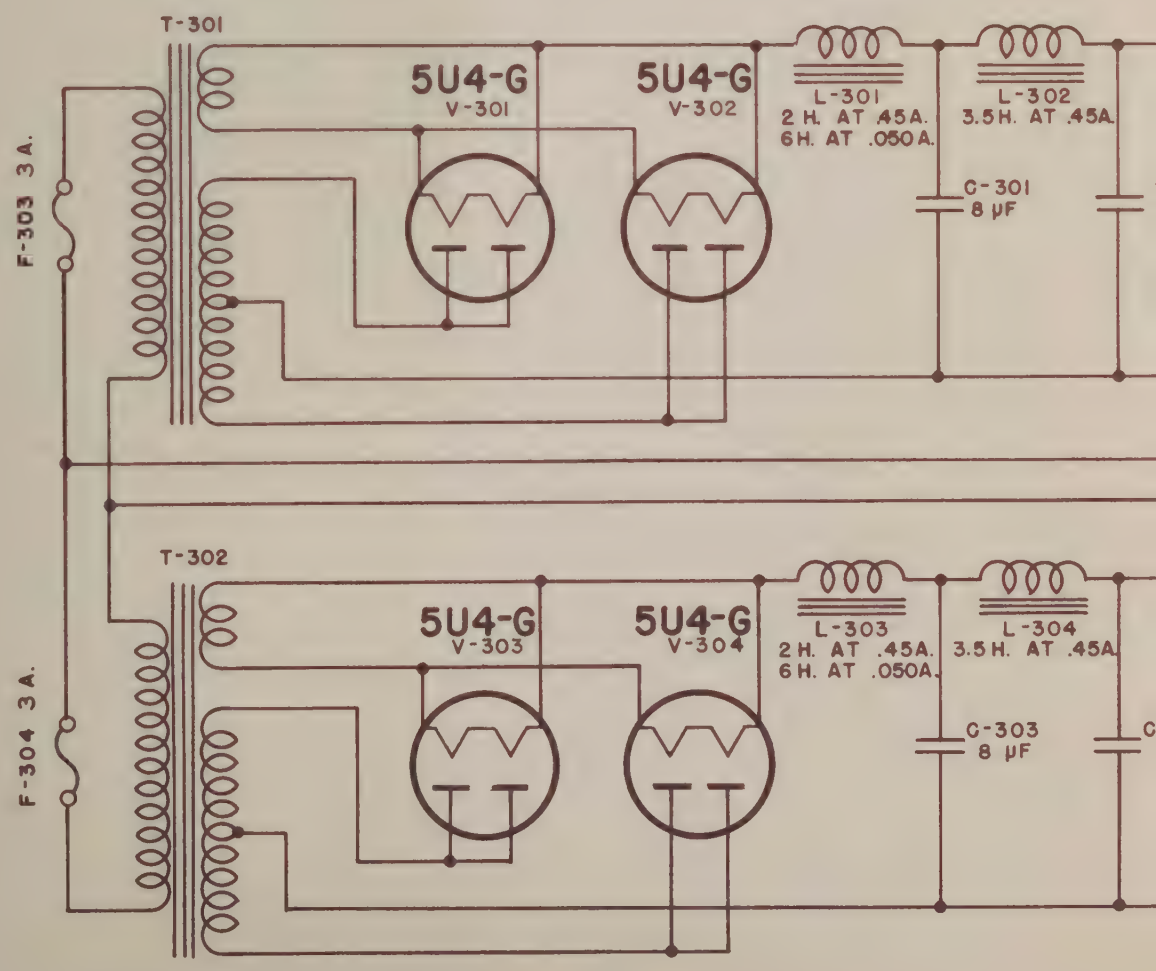
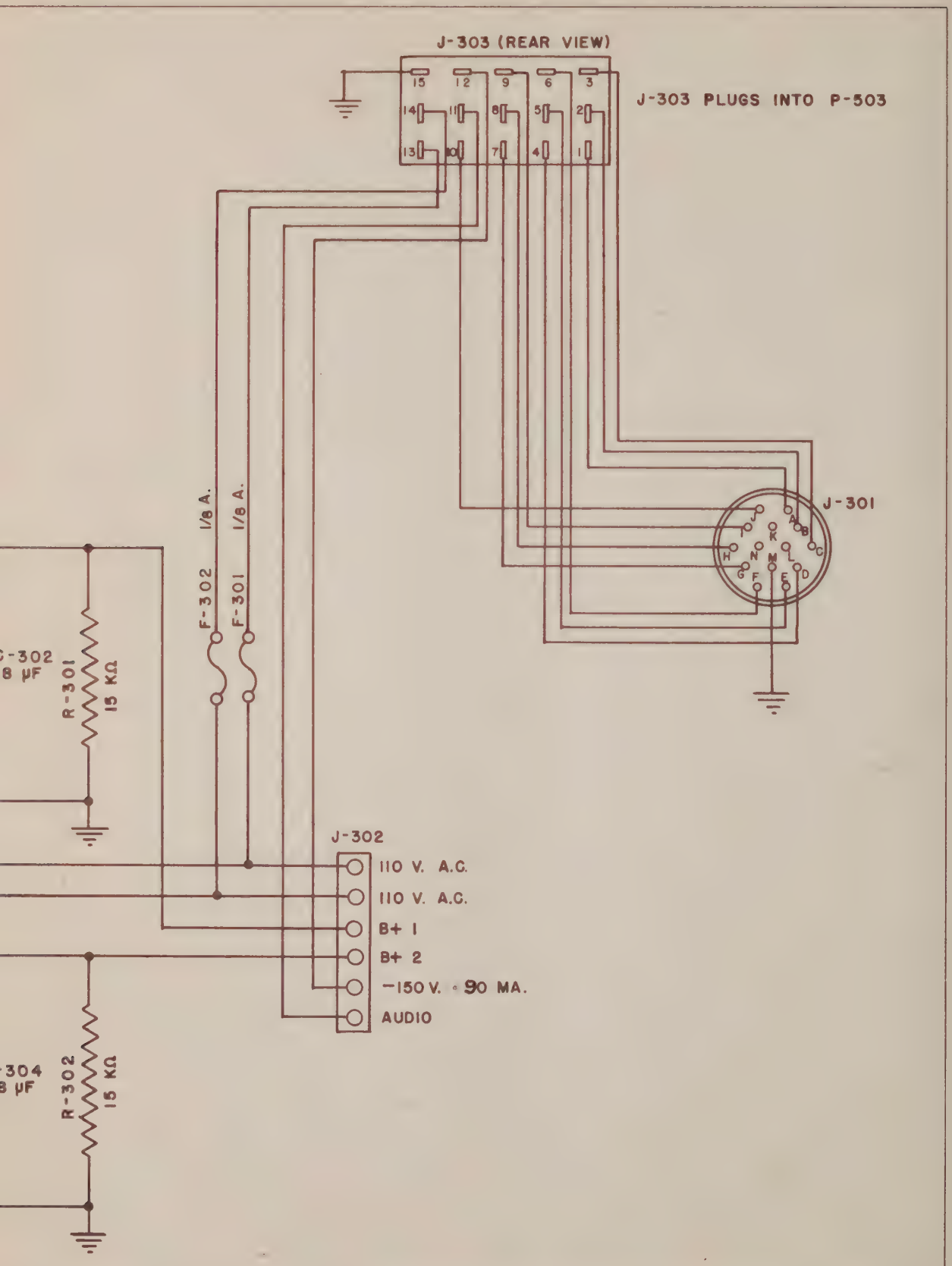


Figure 29, TYPE CIA-20188 H.V. REC



IFIER UNIT, SCHEMATIC DIAGRAM

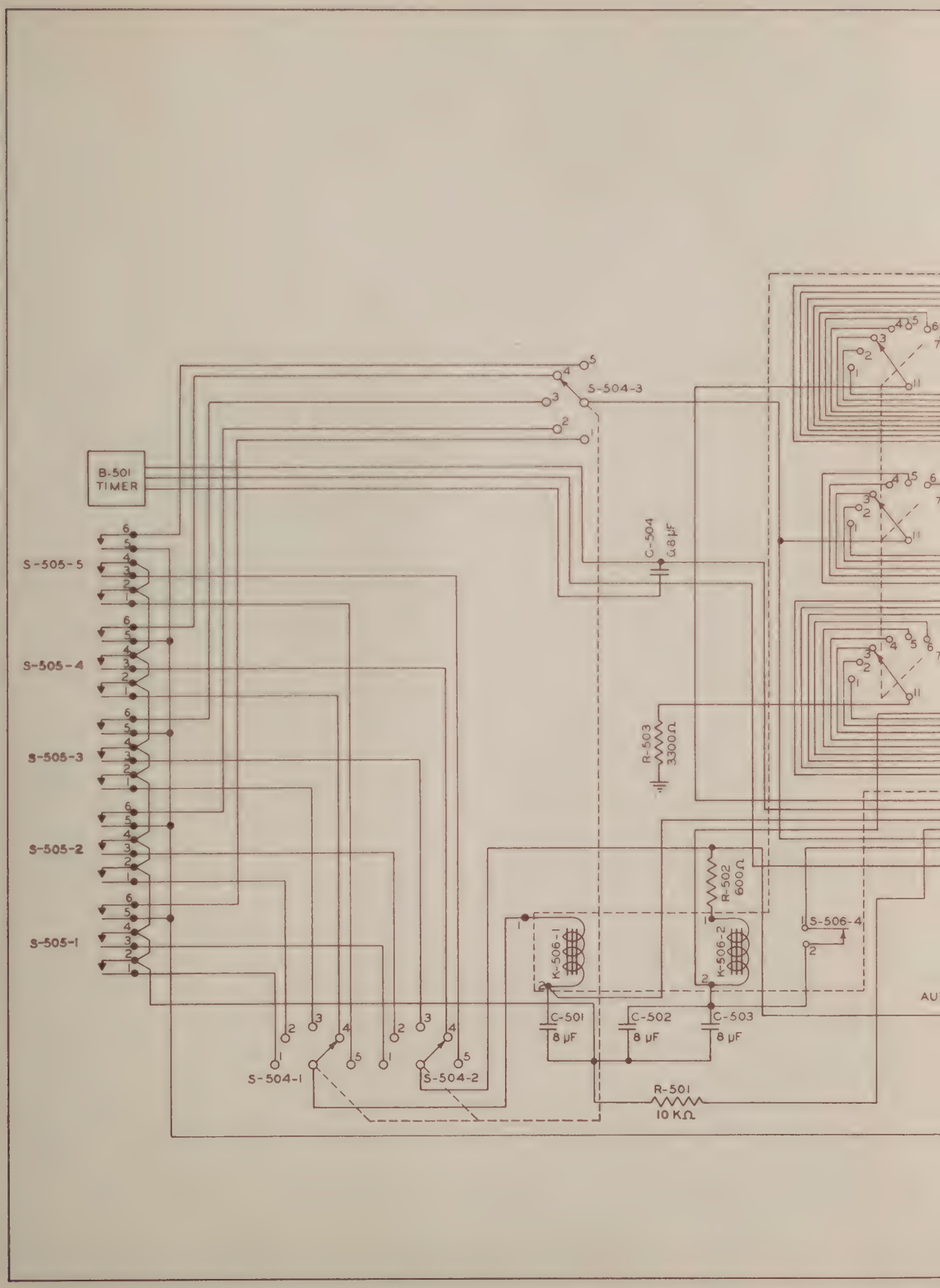
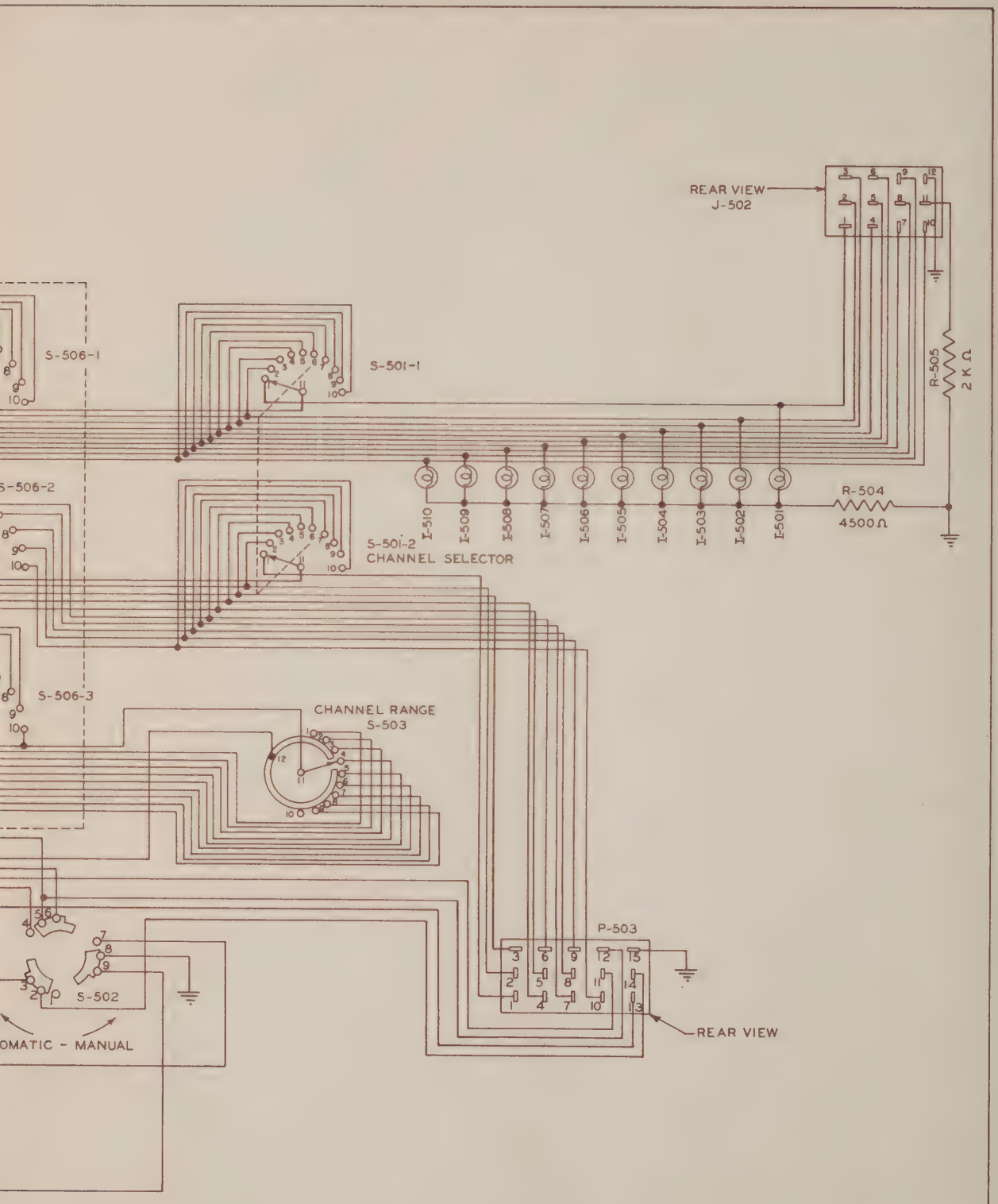


Figure 30, TYPE CIA-23318 SWITCH



NG UNIT, SCHEMATIC DIAGRAM

0

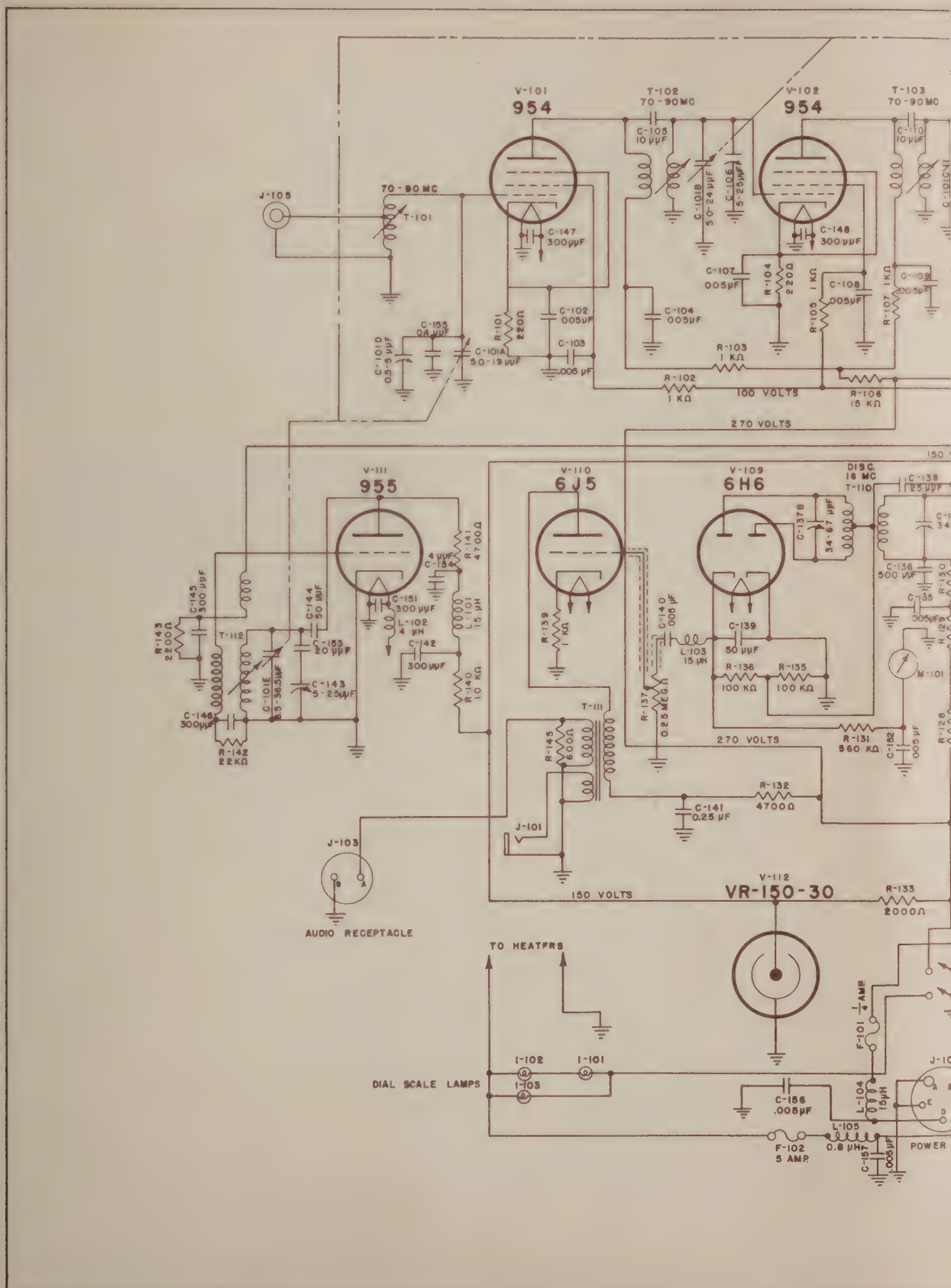
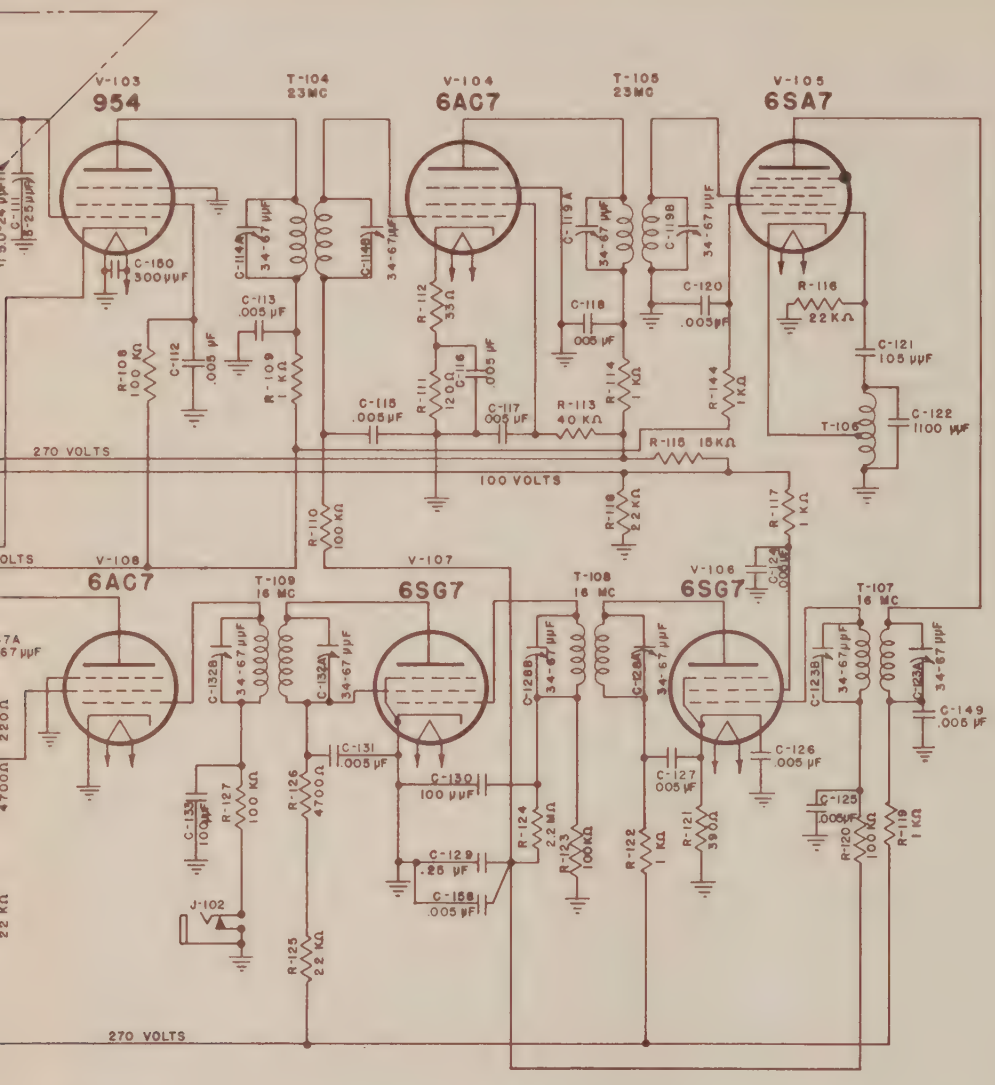
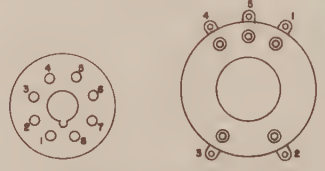


Figure 31, TYPE CIA-46186 RADIO



PIN	TUBE CONNECTIONS							
	6AC7	6H6	6J5	6SA7	6SG7	954 *	955	VR-150-30
1	SHIELD	SHIELD	SHIELD	SHIELD	SUPPRESSOR	HEATER	HEATER	—
2	HEATER	HEATER	HEATER	HEATER	HEATER	SCREEN	PLATE	CATHODE
3	SUPPRESSOR	2ND. D. PLATE	PLATE	PLATE	CATHODE	SUPPRESSOR	GRID	JUMPER
4	GRID	2ND D CATHODE	—	SCREEN	GRID	HEATER	HEATER	—
5	CATHODE	1ST. D. PLATE	GRID	OSC. GRID	CATHODE	CATHODE	CATHODE	ANODE
6	SCREEN	—	—	CATHODE	SCREEN	—	—	—
7	HEATER	HEATER	HEATER	HEATER	HEATER	—	—	JUMPER
8	PLATE	1ST. D. CATHODE	CATHODE	GRID	PLATE	—	—	—
CAP	—	—	—	—	—	PLATE	—	—

* CAP ON THE BOTTOM OF THIS TUBE IS THE CONTROL GRID



TUBE BASE & SOCKET DIAGRAMS
BOTTOM VIEWS

RECEIVER, SCHEMATIC DIAGRAM

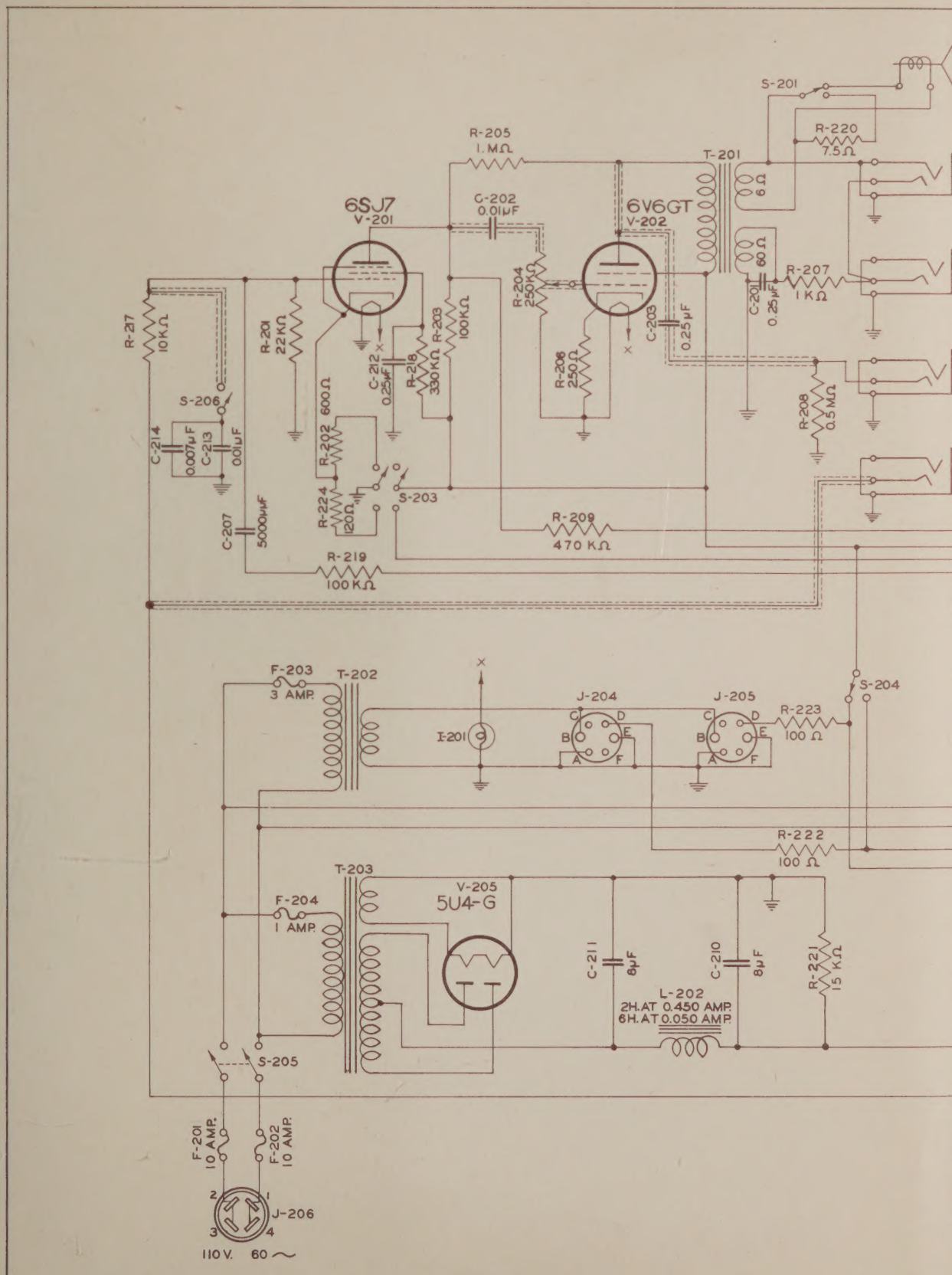
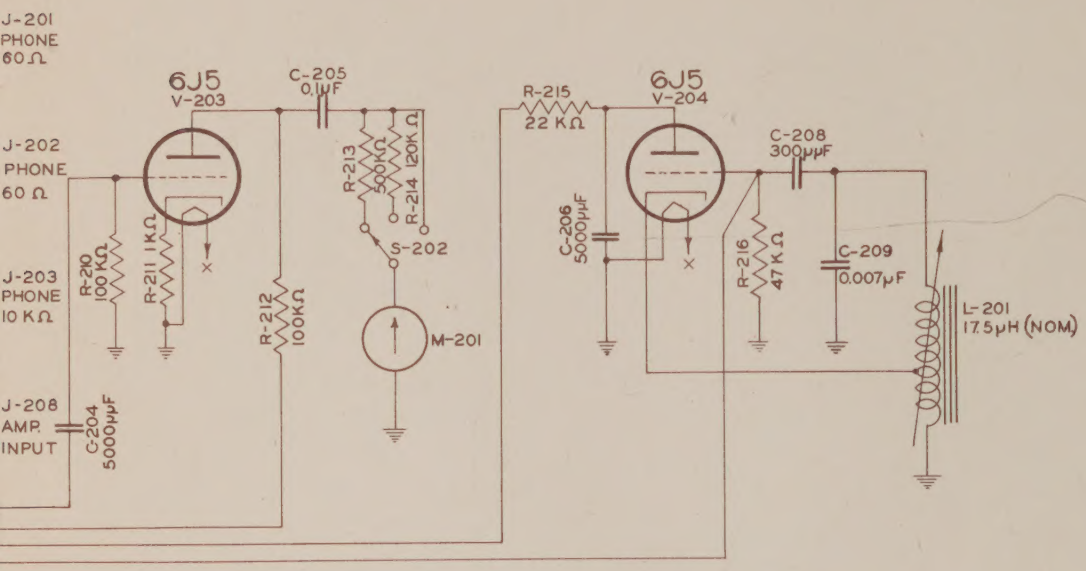
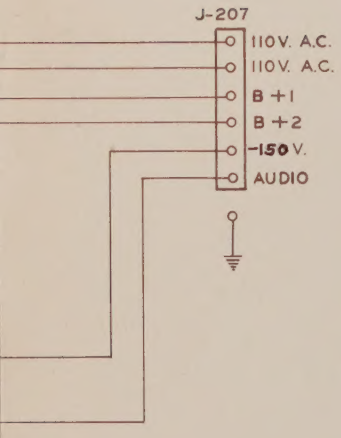


Figure 32, TYPE CIA-50117 AUDIO AMPLIFIER A





ND L.V. RECTIFIER UNIT, SCHEMATIC DIAGRAM